

# **FINAL** Vapor Intrusion Characterization Report

**Former Chamberlain Manufacturing Corporation**

**550 Esther Street**

**Waterloo Iowa**

**EPA Docket Nos.**

**RCRA-07-2010-002**

**CERCLA-07-2010-0005**

**AUGUST 12, 2011** ~~July 5, 2011~~

**Terracon Project No. 07107020**

Prepared for:  
**Chamberlain Manufacturing Corporation**  
**Elmhurst, Illinois**

Prepared by:  
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# **Terracon**

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities



July 5, 2011

United States Environmental Protection Agency  
Region 7  
Air, RCRA and Toxics Division  
901 North 5th Street  
Kansas City, KS 66101

Attention: Mr. Bruce Morrison

Re: Vapor Intrusion Characterization Report  
Former Chamberlain Manufacturing Corporation  
550 Esther Street  
Waterloo, Iowa  
EPA Docket Nos. RCRA-07-2010-002 and CERCLA-07-2010-0005

Dear Mr. Morrison:

Terracon Consultants, Inc. (Terracon) is pleased to submit this revised Vapor Intrusion Characterization Report (VIC Report) for activities in conjunction with the site referenced above. The VIC Report presents results of activities related to the installation of sub-slab vapor sampling points and the collection and analysis of sub-slab vapor, indoor air, and ambient air samples.

Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,  
**Terracon Consultants, Inc.**

John F. Brimeyer, PE  
Environmental Manager

for John B. Sallman, PG  
Principal

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## ACRONYMS & ABBREVIATIONS



CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
City	City of Waterloo
COC	Chain of Custody
EPA	Environmental Protection Agency
HASP	Health and Safety Plan
MDL	Method Detection Limit
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
NELAC	National Environmental Laboratory Accreditation Conference
PCE	Tetrachloroethene (or Perchloroethene)
PID	Photoionization Detector
ppm	parts per million
Property	Chamberlain Manufacturing site
QA	Quality Assurance
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
SOW	Statement of Work
TCE	Trichloroethene
TestAmerica	TestAmerica, Inc.
TSOP	Terracon Standard Operating Procedure
UAO	Unilateral Administrative Order
USEPA	United States Environmental Protection Agency
VIC	Vapor Intrusion Characterization
VIIM	Vapor Intrusion Interim Measures
VOC	Volatile Organic Compound



**VAPOR INTRUSION CHARACTERIZATION REPORT  
FORMER CHAMBERLAIN MANUFACTURING CORPORATION  
550 ESTHER STREET  
WATERLOO, IOWA**

**Project No. 07107020  
July 5, 2011**

## **1.0 INTRODUCTION**

Terracon has prepared this VIC Report to evaluate the results of vapor intrusion characterization activities conducted in accordance with VIC Work Plan dated May 20, 2010 and revised October 14, 2010. The VIC Work Plan was approved with modifications by the USEPA on January 6, 2011<sup>1</sup>. The intent of the VIC Work Plan was to evaluate the potential existence of a vapor pathway in off-site areas related to shallow groundwater contamination from the former Chamberlain Manufacturing facility. This VIC Report is submitted in accordance with the requirements of the UAO, Docket Nos. RCRA 07-2010-002 and CERCLA 07-2010-005 dated April 20, 2010 and Task I of the SOW attached to the UAO. Capitalized terms not defined herein have the definitions set for the in the UAO or the SOW.

The vapor intrusion characterization activities were completed in accordance with USEPA and other applicable guidance including, but not limited to:

- CalEPA (California Environmental Protection Agency). 2004. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*. Interim Final. Department of Toxic Substances Control. Sacramento, CA. (Revised February 7, 2005) ("California Guidance")
- ITRC (The Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline*. Vapor Intrusion Team. Washington, DC. ("ITRC Guidance")
- U.S. EPA. 2002. *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*. Office of Solid Waste and Emergency Response, Washington, DC.
- U.S. EPA. 2008: *US. EPA's Vapor Intrusion Database: Preliminary Evaluation of Attenuation Factors*. Draft. Office of Solid Waste, Washington, DC.
- U.S. EPA "Development of a Sub-Slab Gas Sampling Protocol to Support Assessment of Vapor Intrusion." ([http://www.epa.gov/ahaazvuc/research/waste/research\\_40.pdf](http://www.epa.gov/ahaazvuc/research/waste/research_40.pdf).)

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<sup>1</sup> We understand that the USEPA is currently considering amendments to the VIC Work Plan. The activities described in this VIC Report were completed prior to amendments incorporated after January 6, 2011.



## **1.1 Site Conditions**

The Property is an irregularly shaped parcel containing approximately 22.8 acres and located at 550 Esther Street in Waterloo, Iowa. A Topographic Map is included as Figure 1 in Appendix A. A Site Diagram is included as Figure 2.

Chamberlain Manufacturing produced metal washer wringers and projectile metal parts from approximately 1919 until 1996 when it was sold to Atlas Warehouse L.C. for use as a warehousing facility. The City acquired the Property from Atlas Warehouse L.C. in 2005 in an effort to facilitate redevelopment and has demolished the buildings on the Property.

The Property is zoned Heavy Industrial (M-2) by the City. The Property is adjoined by park land to the north and south, single family residential housing to the west, and Virden Creek followed by a golf course to the east. Virden Creek is within approximately 100 feet of the Property at its closest point. Gates Park adjoins the Property to the north across Louise Street, to the east across Virden Creek, and to the south across the railroad tracks. Single family residences are located across East 4th Street to the west of the Property. Single family residences are also located along the east side of East 4th between Anita and Louise Streets.

## **1.2 Previous Assessment Activities**

Beginning in 2004, the City conducted an environmental assessment of the site using a USEPA Brownfields Grant. Results of assessment activities identified impacts to soil and groundwater at the site including a chlorinated solvent plume that extends to the south and west. Site assessment activities were not completed due to funding restrictions of the Brownfields Grant program.

Subsequently, environmental assessment activities of onsite soil and groundwater conditions and the offsite chlorinated solvent plume were completed by Chamberlain. The lateral extent of the chlorinated solvent plume has been determined to extend south and west from the Property into an area of residential development. USEPA's preliminary evaluation of the vapor intrusion to indoor air pathway resulting from the groundwater plume identified the potential for vapor intrusion into residential structures.

To further evaluate the vapor intrusion pathway, the USEPA conducted sub-slab vapor sampling of selected residences in November 2008. Due to problems with the sampling and analysis equipment, the sampling activities were repeated in April/May 2009. Sub-slab vapor samples were collected from ten homes located along and near East 4<sup>th</sup> Street and analyzed for VOCs. In addition, one indoor air sample was collected from one of the ten homes. The results of sampling activities identified PCE and TCE in excess of sub-slab vapor screening levels in seven of the ten residences sampled. The elevated concentrations were generally located within the 2200, 2300, and 2400 blocks of East 4<sup>th</sup> Street.



### **1.3 Project Objectives**

The objective of the VIC Report is to evaluate the nature and extent of sub-slab soil gas impact in residential areas adjoining the Property to the south and west. Results of sub-slab vapor sampling will be used to evaluate the need for vapor intrusion interim measures and corrective actions.

## **2.0 SCOPE OF SERVICES**

The VIC Report for the area south and west of the Property evaluates the potential vapor intrusion pathway. Activities included the installation of sub-slab vapor sampling ports and the collection of sub-slab vapor samples. In addition, indoor air samples and corresponding ambient air samples were collected at representative locations.

### **2.1 Study Area**

Sub-slab soil gas sampling and analysis began with those homes within the limits identified in the SOW, Exhibit 2, included as Figure 3, Appendix A. The area identified includes approximately 72 Residences. The ten homes sampled by the USEPA in April/May 2009 are included in the study area and were offered the opportunity to be resampled for a consistent baseline.

### **2.2 Sampling Activities**

#### **2.2.1 Site Access**

Prior to site mobilization, the names and addresses for those Residences within the limits identified on Figure 3 were obtained from a review of City of Waterloo directory and the Blackhawk County Real Estate Mapping website. Based on a review of the city directory and county website records, it was determined that 29 of the 72 Residences were rental properties. Each identified property owner and resident was sent a certified letter explaining the availability of the vapor sampling program, details concerning the procedures to be followed, schedule of proposed activities, and availability of results. A Sampling Request Form and a standard Terracon Access Agreement were included with the letters. Copies of the letter, Sampling Request Form, and Terracon Access Agreement for owner-occupied Residences and for renter-occupied Residences are included as Appendix C. A spreadsheet identifying the 72 Residences and the owners and occupants of each was provided to the USEPA on March 30, 2011. A copy of the spreadsheet is also included in Appendix C.

Terracon received responses from 21 owner-occupied Residences and 12 renter-occupied Residences. Each owner and renter submitting a response was contacted in an attempt to



schedule site visits for vapor characterization activities or to obtain fully completed Sampling Request Forms and Access Agreements from both the property owner and the renter. Sampling activities were completed at 17 owner-occupied Residences and 6 renter-occupied Residences. Sampling activities were not completed at responding Residences due to the following reasons:

- Fully completed Sampling Request Forms and Access Agreements not received from both the property owner and the renter (4 renter-occupied Residences)
- Residence was withdrawn from the program either voluntarily or due to conditional requests (2 owner-occupied Residences and 1 renter-occupied Residence)
- Occupants could not be reached to schedule sampling activities (2 owner-occupied Residences)
- Occupants were not available at the scheduled sampling time (1 renter-occupied Residence)

### **2.2.2 Sampling Questionnaire and Site Observations**

Upon arrival at the Residence, Terracon conducted an interview with the occupant to allow for completion of the Occupied Dwelling Questionnaire, intended to document the presence/absence and use of household products containing VOCs. Observations were made to document the location of features including, but not limited to furnaces, water heaters, chimneys, and floor drains and the physical characteristics of the home being sampled including, but not limited to the type of foundation and its integrity.

An Arrival Checklist was completed by Terracon and signed by the occupant following each visit to the Residence. The purpose of the Arrival Checklist was to document proper completion of procedural activities including presentation of Terracon identification, confirmation of occupant's identity, explanation of purpose of the site visit, and discussion of follow-up activities.

### **2.2.3 Sub-slab Soil Gas, Indoor Air, and Ambient Air Sampling**

Sub-slab soil gas sampling was conducted at each of the 23 Residences included in the sampling program. Indoor air sampling and ambient air sampling were conducted at randomly selected Residences included in the sampling program and at each of the Residences included in the sampling program in which the detected concentration of TCE or PCE exceeded the screening level in the April/May 2009 sampling event. Duplicate sample locations were also collected.

Terracon sampling teams arrived at the Residences at the appointed time. After introductions, one member of the sampling team completed the Occupied Dwelling Questionnaire with the occupant. The remaining member of the sampling team proceeded with the installation of the sub-slab sampling port. A Sampling Port Installation Checklist was completed by Terracon and signed by the occupant following completion of sample port installation. The purpose of the Sampling Port Installation Checklist was to document proper completion of procedural activities,



including identification of sample port location with the concurrence of the occupant, sample port installation in accordance with VIC Work Plan procedures, clean-up of work area, and observation of completed port installation by occupant.

After allowing the sub-slab sampling port to cure for at least 48-hours, Terracon returned to the Residence to conduct sampling activities. If the Residence was not scheduled for indoor air sampling, sub-slab soil gas sampling was completed. If the Residence was scheduled for indoor air sampling, indoor air sampling equipment was placed in the designated sampling location and sampling was initiated and a follow-up site visit was scheduled for the following day. After allowing indoor air sampling to proceed for at least 24-hours, Terracon returned to the Residence to collect indoor air sampling equipment and to complete sub-slab soil gas sampling. Ambient air sampling, if scheduled, was conducted concurrently with indoor air sampling to document outdoor levels of VOCs during sampling activities.

An Indoor Air Sampling Canister Installation Checklist was completed by Terracon and signed by the occupant following completion of canister placement. The purpose of the Indoor Air Sampling Canister Installation Checklist was to document proper completion of procedural activities including verification that doors and windows had not been opened for a 24-hour period prior to sampling, identification of sample canister placement with the concurrence of the occupant, explanation of precautions to be taken during sample collection, and arranging for the follow-up visit.

Meteorological conditions were documented during sampling activities.

Copies of the completed Occupied Dwelling Questionnaire are included as Appendix D. Copies of completed field forms including the Soil Vapor/Indoor Air Sampling Information Form and field checklists are included as Appendix E.

## **2.3 Health and Safety**

Terracon prepared a HASP for the sampling activities. Personnel installing sampling ports wore a USEPA Level D work uniform consisting of safety glasses and protective gloves.

## **2.4 Site Access Protocol**

Terracon notified the Occupants at least 48 hours in advance of the start of assessment activities. City staff were notified of pending activities to give them an opportunity to prepare for possible inquiries from residents and to observe sampling activities. Issues regarding access to assessment locations were not encountered during sampling activities.



### 3.0 METHODOLOGIES

Project activities were completed in accordance with the USEPA-approved QAPP, Revision 1 dated August 18, 2006, QAPP Addendum dated August 2, 2010, and relevant TSOPs. The following TSOPs were used during the assessment.

**Table 3-1 Terracon Standard Operating Procedures**

REFERENCE NO.	TITLE OF PROCEDURE
E.10	Project Mobilization
E.20	Standard Safe Operating Procedures for Hazardous Waste Operations
E.30	Chain of Custody Documentation
E.50	Sampling – Environmental Representativeness
E.554	Field Screening – Air / Photoionization Detector
E.2210	General
E.2220	Disposal of Spent Supplies
E.2230	Handling and Storage of Drill Cuttings (Non-Hazardous)
E.2240	Site Security Procedures
E.2405	Cleaning - General
E.2410	Cleaning - Manual Washing

As described in Section 1.5.3 of the QAPP, specific work scopes may require variation of TSOP procedures following relevant state and federal guidance, technical standards, or manufacturer specifications not outlined under a specific TSOP. Accordingly, the following non-TSOPs were incorporated into the VIC Work Plan and were used as a part of characterization activities.

#### 3.1 Sampling Port Installation

Sub-slab soil gas samples were collected via a hollow steel sleeve installed through the concrete floor slab. The sub-slab inserts were constructed from a 1-inch outer diameter by 4-inches long cylindrical blank. The steel blanks were hollowed out to allow for the passage of sub-slab soil gas from beneath the floor slab into the sampling apparatus. The top of the sub-slab insert consisted of a threaded set-screw style cap and rubber O-ring that allows for a flush mounted installation and sealing of insert. Sub-slab inserts also had a one-eighth inch diameter rod welded vertically on their exterior to prevent the insert from spinning loose after the installation process.

Upon arrival at the Residence, Terracon observed the basement area to identify a location for installation of the sampling port. Terracon attempted to identify an unobtrusive location in an interior portion of the basement that was not near possible migration pathways such as floor drains, separated floor cracks, unsealed pipe penetrations, or sump pump pits. Pertinent observations were documented on a Soil Vapor/Indoor Air Sampling Information Form and photographs of the port location, before and after installation, were taken. Photographs of installed sample ports are provided in Appendix F.



Sub-slab inserts were thoroughly cleaned before installation to remove any residues and contaminants left over from the fabrication processes. The inserts were installed in holes drilled through the concrete floor slab using a 1½-inch diameter carbide masonry bit and a rotary hammer drill. The hole was advanced completely through the concrete floor slab. Silica sand was used to backfill the hole and obtain the proper level for the insert to be flush mounted. A small piece of wire mesh screen was placed between the silica sand and insert to prevent silica sand from entering the insert interior. Additional silica sand was placed around the insert to stabilize the insert in the hole for the remaining installation process. The remaining annular space around the insert was filled to the concrete surface using neat Portland cement. The Portland cement was mixed with water until a paste consistency was obtained. The Portland cement was then placed into the annular space and finished as a flush mounted unit.

The sampling port installation was completed in accordance with the USEPA-approved QAPP Addendum dated August 2, 2010 and consistent with the USEPA guidance.

### **3.2 Sub-Slab Vapor Sampling**

Sub-slab vapor sampling was conducted in accordance with the ITRC Guidance. The set screw of the flush mounted insert was removed using an Allen wrench. A threaded nipple with Teflon tubing was screwed into the flush mounted sub-slab insert. A syringe was connected to the Teflon tubing and used to purge approximately two volumes of soil gas from the sub-slab soil gas sampling point.

The sample was collected by attaching the top end of the tubing to a six-liter Summa canister equipped with a 200 cubic centimeter per minute flow control and vacuum gauge. The vacuum in the Summa canister before and after sampling was recorded on the information form. The valve of the Summa canister was opened and the sub-slab soil gas allowed to flow into the Summa canister for a period of 30-minutes. The vacuum gauge was monitored to check progress of the canister filling. The Summa canister valve was then closed and the Summa canister was submitted for laboratory analysis. Sample collection was completed prior to the full dissipation of vacuum on the summa canisters.

Based on a review of port installation and sampling procedures, it was determined in the field that excessive moisture or dust was not anticipated during sampling activities. As such, an in-line paper filter/moisture trap was not used.

After the soil gas sample was collected, a photo-ionization detector was connected to the tubing to measure the organic vapor concentration. A Soil Vapor/Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, etc. was completed for each soil gas sample. A COC was also filled out indicating the sample identification, sampling time, equipment identifiers, and soil organic vapor reading. The canisters were then transported to the laboratory.



Sub-slab vapor samples were collected from each Residence that granted access, responded to Terracon's request to schedule sampling activities, and was available at the scheduled time within the limits of the area identified.

### **3.3 Indoor Air Sampling**

Indoor air sampling was conducted in accordance with the ITRC Guidance. Indoor air samples were collected using laboratory prepared six-liter Summa canisters and flow controllers. The flow controllers were pre-set by the laboratory to collect samples over a 24-hour period. Terracon requested that occupants close doors and windows and operate the heating, ventilating, and air conditioning (HVAC) system for the period beginning 24-hours prior to the start of sample collection to the end of sample collection.

In accordance with the USEPA approval letter dated January 6, 2011, indoor air sampling was conducted in the basement and in the lowest occupied living area of each Residence. For Residences with finished family rooms and/or bedrooms in the basement, the basement was determined to be the lowest occupied level. Upon arrival at the Residence, Terracon observed the basement and first floor areas to determine the number of samples required, per the USEPA approval letter, and the sample locations. Terracon attempted to identify unobtrusive locations in interior portions of the basement and first floor that were not near possible migration pathways such as exterior doors or windows, floor drains, separated floor cracks, unsealed pipe penetrations, or sump pump pits. Pertinent observations were documented on a Soil Vapor/Indoor Air Sampling Information Form and photographs of the sample location were taken.

Terracon field personnel connected the flow controller to the Summa canister by removing the brass cap on the canister and tightening the stainless steel Swagelock fitting on the flow controller to the threads on the canister. A wrench was used to firmly tighten the fitting.

Once sampling locations were selected, Terracon air sampling forms (project information, equipment identifiers, sample location, and start time) were filled out and attached to the canisters. A Soil Vapor/Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, initial and final vacuum readings, etc. was completed for each indoor air sample. A COC was completed indicating the start time for the samples.

To open the canister, the valve was rotated counter-clockwise at least one full turn or otherwise opened. After the 24-hours, Terracon personnel returned to the Residence, closed the valve on the canister and recorded the time and vacuum remaining in the Summa canister on the Terracon sampling forms and on the COC. The canisters and flow controllers were then transported to the laboratory.

Indoor air sampling was conducted in one Residence for every ten Residences at which sub-slab vapor samples collected from those Residences granting access. Residences identified for indoor



air sampling were randomly determined using the Random function of Microsoft Excel®, except that efforts were made to uniformly distribute selected locations across the study area. If application of the Random function resulted in multiple indoor air samples distributed across a small portion of the study area, the Random function was reran to produce a more uniform distribution across the entire area.

Indoor air sampling was also conducted at those Residences included in the sampling program in which the detected concentration of TCE or PCE exceeded the screening level in the April/May 2009 sampling event. The Residences selected for resampling were in addition to the one Residence for every 10 homes as noted previously.

### **3.4 Ambient Air**

Ambient (outdoor) air samples were collected simultaneously with the indoor air samples over a 24-hour period. The sample locations for ambient air sampling were randomly determined from the group of indoor air sample locations using the Random function of Microsoft Excel®. Ambient air samples were not collected near buildings or large trees. Following set-up of indoor air samples, Terracon observed exterior areas at the Residence to identify locations for collecting the ambient air sample.

A Soil Vapor/Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, initial and final vacuum readings, etc. was completed for each ambient air sample. A COC was completed indicating the start time for the samples.

The samples were collected using individually-certified 6-liter Summa canisters with 24-hour flow controllers. Once a sampling location was selected, a Terracon air sampling form (project information, equipment identifiers, sample location, and start time) was filled out and attached to the canister. The inlet to the flow controllers were positioned between 3 and 5 feet above the ground surface. Raincaps were positioned over the canisters and flow controller inlets to protect them from weather conditions and the canisters were secured in place.

To open the canister, the valve was rotated counter-clockwise at least one full turn or otherwise opened. After 24 hours, Terracon personnel returned to the Residence, closed the valve on the canister and recorded the time and vacuum remaining in the Summa canister on the Terracon sampling forms and on the COC. The canisters and flow controllers were then transported to the laboratory.

Three ambient air samples were collected in conjunction with sub-slab vapor and indoor air sampling activities.



## 4.0 ANALYTICAL RESULTS

Sub-slab vapor, indoor air, and ambient air samples were collected using six-liter Summa canisters. The Summa canisters were submitted for analysis of PCE, TCE, vinyl chloride, trans-1,2-dichloroethene (trans-DCE), cis-1,2-dichloroethene (cis-DCE), 1,1-dichloroethene, 1,1-dichloroethane, 1,1,1-trichloroethane (TCA), and 1,1,2-trichloroethane, using EPA Method TO-15.

Laboratory procedures were performed by TestAmerica, Knoxville, Tennessee. TestAmerica is NELAC accredited for the laboratory methods referenced above. The laboratory QAM is on file with the USEPA. A copy of the SOPs for the specified method was included as Appendix F of the VIC Work Plan. The TestAmerica data is reported in accordance with the QAM and SOP. Copies of the laboratory analytical reports are included in Appendix G

### 4.1 Field Screening

Terracon conducted field screening of sub-slab soil gas and ambient air in conjunction with sub-slab soil gas sampling using a PID. This device provides a direct reading in ppm. The PID is a nonspecific total vapor detector and cannot be used to identify unknown substances; it can only roughly quantify for total volatiles present in the air. Terracon gas-calibrated the PID in accordance with the manufacturer's recommendations before the field activities. After connecting the Summa canister to the sub-slab sample port and allowing the instrument to stabilize, Terracon screened the ambient air in the basement using the PID equipped with a 10.2 eV ultraviolet lamp source. Following completion of sub-slab sampling, Terracon disconnected the Summa canister from the sample tubing and connected the PID to screen sub-slab soil gas for organic vapors. The field screening results for each sub-slab sample are included on the Soil Vapor/Indoor Air Sampling Information Form and are summarized on Table 1, Appendix B.

### 4.2 Laboratory Analysis

#### 4.2.1 Screening Levels

Table 1A1 of the Statement of Work from the Unilateral Administrative Order for the Chamberlain Manufacturing Site (Docket No. RCRA-07-2010-002 and CERCLA-07-2010-005) identifies applicable screening levels for comparison of sub-slab and analytical results. These screening levels are presented in Table 4-1 below.

Table 4-1 Interim Measures Screening Levels

Contaminant	Indoor Air Screening Level ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	Sub-Slab Vapor Screening Level ( $\mu\text{g}/\text{m}^3$ ) <sup>2</sup>	Analytical Detection Limit ( $\mu\text{g}/\text{m}^3$ )
Perchloroethene	0.41 c <sup>3</sup>	4.1	0.540
Trichloroethene	1.2 c	12	0.215



Contaminant	Indoor Air Screening Level ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	Sub-Slab Vapor Screening Level ( $\mu\text{g}/\text{m}^3$ ) <sup>2</sup>	Analytical Detection Limit ( $\mu\text{g}/\text{m}^3$ )
Vinyl Chloride	0.16	1.6	0.204
Trans-1,2-Dichloroethene	63 n <sup>4</sup>	630	0.317
Cis-1,2-Dichloroethene <sup>5</sup>	63 n	630	0.317
1,1-Dichloroethene	210 n	2,100	0.317
1,1-Dichloroethane	1.5 c	15	0.324
1,1,1-Trichloroethane	5,200 n	52,000	0.436
1,1,2-Trichloroethane	0.15 c	1.5	0.360

<sup>1</sup> – Residential Indoor Screening Levels obtained from Regional Screening Table (USEPA 2009).

<sup>2</sup> – Sub-slab vapor screening level = (Residential Indoor Screening Levels)/ $\alpha$ .

<sup>3</sup> – c – based on  $10^{-6}$  carcinogenic health effects.

<sup>4</sup> – n – based on non-carcinogenic health effects.

<sup>5</sup> – Trans-1,2-Dichloroethene is used as a surrogate compound for cis-1,2-Dichloroethene.

#### 4.2.2 Laboratory Reporting Limits and Non-Detect Values

Laboratory technology cannot detect to concentrations of zero. As acknowledged by the USEPA, analytical methods dictate Analytical Detection Limits as the lower limit to which the procedures can accurately and repeatedly "see" a designated compound. The Analytical Detection Limit is a minimum concentration of a substance that can be measured and reported with 99% confidence that the compound concentration is greater than zero. The Analytical Detection Limit is determined from analysis within the given matrix of the sample and affected by matrix materials and/or other compounds within the matrix. The Indoor Air Screening Level for PCE, 1,1,2-trichloroethane, and vinyl chloride are less than the Analytical Detection Limit for these compounds. The USEPA has approved the use of the Analytical Detection Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.

#### 4.3 Sampling Program

Terracon collected sub-slab soil gas, indoor air, and ambient air samples for laboratory analysis in accordance with procedures established in the VIC Work Plan. Residences included in the sampling program are identified on Figure 3, Appendix A. Table 4-2 summarizes the sampling and analysis completed for each Residence.

Table 4-2 Summary of Sampling Program

Property ID	Address	Sub-Slab Soil Gas	Indoor Air	Ambient Air
4	322 E. Arlington St.	x	x	x
6	401 E. Arlington St.	x		



Property ID	Address	Sub-Slab Soil Gas	Indoor Air	Ambient Air
10	211 Boston Ave.	x		
13	216 Boston Ave.	x		
15	223 Boston Ave.	x		
17	227 Boston Ave.	x		
20	236 Boston Ave.	x		
21	239 Boston Ave.	x		
22	240 Boston Ave.	x		
28	302 Boston Ave.	x		
33	326 Boston Ave.	x	x	
37	2221 E. 4th St.	x		
38	2227 E. 4th St.	x	x	
39	2233 E. 4th St.	x		
40	2237 E. 4th St.	x	x	x
45	2413 E. 4th St.	x	x	
46	2417 E. 4th St.	x	x	x
47	2421 E. 4th St.	x		
48	2427 E. 4th St.	x	x	
56	2600 E. 4th St.	x		
60	2614 E. 4th St.	x		
62	2620 E. 4th St.	x		
67	2635 E. 4th St.	x		
72	2646 E. 4th St.	Not completed	Not completed	

† – Sample port installation was completed; however, occupant was not available to complete sampling.

## 4.4 Analytical Results

### 4.4.1 Sub-Slab Soil Gas Sampling

Sub-slab soil gas samples were collected in 23 Residences. The reported concentrations of PCE and TCE exceeded the sub-slab screening level in samples collected from eight of the Residences. The reported concentration of PCE exceeded the sub-slab screening level in samples collected from three additional Residences. The maximum reported PCE and TCE concentrations were  $140 \mu\text{g}/\text{m}^3$  and  $6,000 \mu\text{g}/\text{m}^3$ , respectively.

The reported concentrations of the remaining contaminants of concern did not exceed sub-slab screening levels in the 11 Residences exhibiting PCE or TCE exceedences. The reported concentrations of the contaminants of concern did not exceed sub-slab screening levels in the remaining 12 Residences.

The screening levels are based on a health risk of  $10^{-6}$  for carcinogenic compounds and a hazard quotient of 1 for non-carcinogenic compounds. Dividing the reported concentration of a

compound by the screening level and multiplying by  $10^{-6}$  results in a health risk for that compound. The reported concentration of TCE in sub-slab samples collected at 322 East Arlington, 302 Boston Avenue, and 2413 East 4th Street resulted in a health risk of greater than  $10^{-4}$ . The reported concentration of PCE in sub-slab samples collected at these three Residences resulted in a health risk of greater than  $10^{-6}$  but less than  $10^{-4}$ . The reported concentration of PCE and/or TCE in sub-slab samples collected at 236 Boston Avenue, 240 Boston Avenue, 326 Boston Avenue, 2221 East 4th Street, 2227 East 4th Street, 2237 East 4th Street, 2417 East 4th Street, and 2427 East 4th Street resulted in a health risk of greater than  $10^{-6}$  but less than  $10^{-4}$ . Health risk calculations are summarized in Table 4-3.

**Table 4-3 Health Risk Summary**

Residence	PCE Concentration ( $\mu\text{g}/\text{m}^3$ )	Health Risk	TCE Concentration ( $\mu\text{g}/\text{m}^3$ )	Health Risk
322 E. Arlington St.	41	1.00E-05	1300	1.08E-04
236 Boston Ave.	4.5	1.10E-06	8.3	6.92E-07
240 Boston Ave.	13	3.17E-06	25	2.08E-06
302 Boston Ave.	120	2.93E-05	6000	5.00E-04
326 Boston Ave.	11	2.68E-06	61	5.08E-06
2221 E. 4th St.	28	6.83E-06	3.3	2.75E-07
2227 E. 4th St.	140	3.41E-05	0.08	6.67E-09
2237 E. 4th St.	13	3.17E-06	99	8.25E-06
2413 E. 4th St.	36	8.78E-06	5700	4.75E-04
2417 E. 4th St.	29	7.07E-06	1100	9.17E-05
2427 E. 4th St.	15	3.66E-06	89	7.42E-06
Sub-Slab Screening Level	4.1		12	

Results of sub-slab soil gas sampling are depicted on Figure 4, Appendix A. Analytical results are presented in Table 1, Appendix B. Copies of laboratory analytical reports are provided in Appendix G.

#### 4.4.2 Indoor Air Sampling

Indoor air samples were collected in seven Residences including two Residences based on 10% of sub-slab sampling and five Residences based on previous screening level exceedances. The reported concentrations of PCE exceeded the indoor air screening level in samples collected from three of the Residences and the reported concentration of TCE exceeded the sub-slab screening level in samples collected from one of the Residences. The maximum reported PCE and TCE concentrations were  $2.5 \mu\text{g}/\text{m}^3$  and  $2.1 \mu\text{g}/\text{m}^3$ , respectively.

The reported concentrations of the remaining contaminants of concern did not exceed indoor air screening levels in these four Residences. The reported concentrations of the each contaminant of concern did not exceed sub-slab screening levels in the remaining three Residences.



Results of indoor air sampling are depicted on Figure 4, Appendix A. Analytical results are presented in Table 2, Appendix B. Copies of laboratory analytical reports are provided in Appendix G.

#### 4.4.3 Ambient Air Sampling

Ambient air samples were collected at three Residences. PCE and TCE were detected in one of the samples collected at concentrations of  $0.19 \mu\text{g}/\text{m}^3$  and  $0.088 \mu\text{g}/\text{m}^3$ , respectively. The reported concentrations of PCE and TCE in this sample were J-flagged indicating that the results were greater than the MDL, but lower than the laboratory reporting limit. As a result, the reported concentrations were estimated. PCE and TCE were not detected in the remaining samples collected. The remaining contaminants of concern were not detected in the samples collected.

Analytical results are presented in Table 3, Appendix B. Copies of laboratory analytical reports are provided in Appendix G.

#### 4.5 Comparison to Interim Measures Decision Matrix

A summary of analytical results compared to screening levels is provided in Table 1 and Table 2 of Appendix B. A summary of sampling results compared to Table 2-1 of the Vapor Intrusion Interim Measures Work Plan dated October 14, 2010 and approved by the USEPA on January 6, 2010 is presented in Table 4-4 below.

Table 4-4 Interim Measures Decision Matrix

Generic Screening Levels		Indoor Air Concentrations ( $\mu\text{g}/\text{m}^3$ )		
		<Indoor Air Screening Level	No Indoor Air Sample	>Indoor Air Screening Level
Sub-Slab Soil Gas Concentration ( $\mu\text{g}/\text{m}^3$ )	< Sub-Slab Vapor Screening Level Risk $\leq 10^{-6}$ and Hazard Quotient $\leq 1$	0	12	0
	> Sub-Slab Vapor Screening Level $10^{-6} < \text{Risk} < 10^{-4}$ and Hazard Quotient $> 1$	2	4	3
	> Sub-Slab Vapor Screening Level Risk $> 10^{-4}$ or Hazard Quotient $> 1$	1	0	1



## **5.0 QUALITY ASSURANCE/QUALITY CONTROL**

### **5.1 Field Documentation**

Sample quality assurance and quality control was maintained during the collection of samples in the field and during transport to the laboratory as documented through the completion of field forms and COCs. The transfer of sample custody was limited between Terracon personnel, laboratory couriers, and fixed base laboratory personnel. The primary objective of custody requirements for this project was to track that samples were handled by authorized personnel and document that handling occurred within the parameters of the approved VIC Work Plan.

Following collection, samples were maintained in the custody of the field team at the site until they were delivered to the TestAmerica laboratory in Cedar Falls, Iowa at the end of each day. The samples were received at the laboratory and logged in accordance with standard laboratory protocols. Analysis of the samples was completed by the TestAmerica laboratory in Knoxville, Tennessee. Samples were transferred by overnight courier from Cedar Falls to Knoxville under standard laboratory and COC procedures. COC documentation is maintained by Terracon.

COC protocols were followed during each phase of the sample collection, storage, shipment, and analysis procedures. Maintaining the COC in the field was the responsibility of the Terracon project professional. COCs were completed for each sample immediately following completion of sample collection and before removing the samples from the Residence.

Samples collected in the field were labeled and then stored in secure locations from the time of collection through transfer to the fixed base laboratory. Soil gas and air samples were collected using laboratory prepared Summa canisters and were kept at ambient temperature. In accordance with the QAPP, samples were not required to be preserved.

Soil gas and air samples were submitted for analysis of select VOCs by EPA Method TO-15. Terracon has reviewed analytical reports and has confirmed that each sample was analyzed within the designated 14-day holding time.

A COC record accompanied each set of samples during collection and shipment. Each COC record was filled out and signed in permanent ink by a Terracon field team member conducting the sampling. The COC records include the following information: project name and number, sample designation, date and time of collection, samplers name, number of sample containers, type of matrix, analysis to be performed, signature of laboratory person(s) receiving samples, and inclusive dates / times of possession. A carbon copy or photocopy was made of the COC record at the time of delivery to the laboratory.



## 5.2 QA/QC Sampling

In accordance with the VIC Work Plan, duplicate samples and equipment blanks were used to monitor the quality assurance and control of the field sampling activities. The duplicate samples and equipment blanks were analyzed for VOCs. As required, at least one duplicate sample was collected per each 20 sub-slab vapor samples, each 20 indoor air samples, and each 20 ambient air samples. In addition, one equipment blank was required per 20 samples collected. A summary of QA/QC samples collected is provided in Table 5-1.

Table 5-1 QA/QC Samples

Sample Type	No. of Samples	QA/QC Type	No. of QA/QC Samples
Sub-Slab	23	Duplicate	3
Indoor Air	14	Duplicate	1
Ambient Air	3	Duplicate	1
Total Samples	40	Equipment Blank	3

## 5.3 Quality Control Parameters

To assess whether quality assurance objectives for this project have been achieved, the following QC parameters were considered: precision, accuracy, representativeness, comparability, completeness, and sensitivity.

### 5.3.1 Precision and Accuracy

As described in the QAPP, precision is evaluated using the RPD between an actual sample and a duplicate sample. Accuracy is evaluated using a percent recovery measured in spiked and unspiked samples. Accuracy is a function of the laboratory method, and parameters regarding accuracy are included in the lab report provided by the laboratory.

Duplicate samples were collected for samples SS-17, SS-38, SS-67, IA-48, and AA-40. For each compound that was detected in both samples (e.g., SS-17 and its duplicate SSD-17), Terracon compared the reported concentrations. The absolute values of the RPDs for air generally ranged from 7.4% to 38.1%; however the RPD for TCE in samples SS-38 and SSD-38 was 146.7%. Generally, an RPD of less than 50% for air samples is considered acceptable. Regarding the elevated RPD between SS-38 and SSD-38, Terracon notes that the reported TCE concentrations were  $0.08 \mu\text{g}/\text{m}^3$  and  $0.52 \mu\text{g}/\text{m}^3$ , respectively. The MDL for TCE is reported as  $0.075 \mu\text{g}/\text{m}^3$ . At relatively low concentrations, such as those reported for TCE in samples SS-38 and SSD-38, variations in reported sample and duplicate sample concentrations can significantly impact the RPD. Terracon has evaluated the effects of the elevated RPD and does not consider it to be indicative of a data failure, particularly considering that the RPD for PCE and 1,1,1-trichloroethane were determined to be 8.0% or less in the same samples.



Laboratory accuracy controls were documented in accordance with the laboratory's internal QA Manual. The laboratory followed USEPA procedures.

### **5.3.2 Representativeness**

Terracon has evaluated the representativeness of the VIC activities to document the degree to which the sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Review of field methods and procedures indicated that sample collection, handling, and transportation were conducted in accordance with the QAPP and VIC Work Plan. Review of analytical results indicates that the analytical data is generally uniform and consistent between sampling points and with previous sampling and analysis activities.

### **5.3.3 Completeness**

Laboratory analysis was completed on each of the samples collected in the field and submitted for analysis. Laboratory completeness was determined to be 100%.

### **5.3.4 Comparability**

To produce comparable data, the units specified for analytical results obtained during the field activities are consistent throughout this project and standardized analytical methods have been used for each parameter.

### **5.3.5 Sensitivity**

The Analytical Detection Limits were not sufficient to report concentrations below the indoor air screening levels for PCE, 1,1,2-trichloroethane, and vinyl chloride. For this reason, the USEPA has approved the use of the Analytical Detection Limit as the screening level for this site.

## **6.0 RECOMMENDATIONS**

Terracon has evaluated the results of the sampling activities in consideration of the USEPA-approved screening levels. Based on a comparison of reported sub-slab and indoor air results to their respective screening levels, supplemental actions and interim measures have been identified, consistent with the VIIM Work Plan and subject to USEPA's review and approval. Proposed actions are depicted on Figure 5, Appendix A. Follow-up activities include the following:

- No Action – Sub-slab concentrations and indoor air concentrations are less than screening levels.



- Monitor – Sub-slab concentrations are greater than screening levels and indoor air concentrations are less than screening levels
- Conduct Indoor Air Sampling - Sub-slab concentrations are greater than screening levels and indoor air samples were not collected
- Install Mitigation Systems - Sub-slab concentrations and indoor air concentrations are greater than screening levels.

## **6.1 No Action**

The reported concentrations of sub-slab samples in 12 Residences are less than the sub-slab screening level and indoor air samples were not collected. Comparison of sub-slab sample results to indoor air sample results in Residences where both were collected demonstrates that the actual attenuation factor is on the order of 100, significantly larger than the anticipated attenuation factor of 10. Further sampling and analysis and implementation of interim measures is not warranted.

Terracon will return to these 12 residences no earlier than July 20, 2011 to remove the sub-slab sampling ports. Using hand tools, Terracon will loosen the neat Portland cement placed in the annulus of the hole to allow for removal of the insert. After removal, the hole will be augered out using a 1¼-inch diameter carbide masonry bit and a rotary hammer drill. The hole will be filled to the concrete surface using neat Portland cement and finished flush with the concrete surface.

## **6.2 Monitor**

The reported concentrations of sub-slab samples in three Residences are greater than the sub-slab screening level and the indoor air concentrations are less than the indoor air screening level. In accordance with the approved VIIM Work Plan, Terracon proposes to monitor indoor air to demonstrate that indoor air concentrations remain below indoor air screening levels in accordance with the schedule contained in Table 7-1. If monitoring activities identify an exceedance of indoor air screening levels during any indoor air sampling event, Terracon will use the interim measures decision matrix to propose further actions.

## **6.3 Sample Indoor Air**

The reported concentrations of sub-slab samples in four Residences are greater than the sub-slab screening level and indoor air samples were not collected. In accordance with the interim measures decision matrix, Terracon proposes to collect indoor air samples from these Residences.



Terracon proposes to return to the Residence to conduct indoor air sampling in accordance with the approved VIC Work Plan. Based on the results of sample analysis, Terracon will use the interim measures decision matrix to propose further actions.

#### **6.4 Mitigation Systems**

The reported concentrations of sub-slab samples in four Residences are greater than the sub-slab screening level and the indoor air concentrations are greater than the indoor air screening level.

Based on a review of the completed Occupied Dwelling Questionnaire, site conditions, and other factors, these residences were offered a mitigation system, even though the VIIM Work Plan allowed the parties to conduct additional sampling to confirm the initial results.

#### **6.5 Expand Study Area**

The proposed study area was developed based on a review of groundwater plume maps and was intended to complete indoor air sampling in those areas where elevated TCE impact in groundwater was observed. Terracon has reviewed the results of sub-slab and indoor air sampling activities and has confirmed that the reported exceedances of screening levels generally occurred within an area that corresponded with groundwater TCE concentrations of greater than 100 µg/L.

The area of sub-slab and indoor air exceedances are generally defined as the 2200 and 2400 blocks of East 4<sup>th</sup> Street and the east side of the 200 and 300 blocks of Boston Avenue. Terracon observes that screening levels are not exceeded on the south side of the 300 block of East Arlington Street, the west side of the 200 block of Boston Avenue or the 2600 block of East 4<sup>th</sup> Street.

Screening level exceedances are observed on the east side of the 300 block of Boston Avenue; however, sub-slab and indoor air sampling were not conducted on the west side of the block. In addition, Residences in the 2500 block of East 4<sup>th</sup> Street did not accept the sampling offer and sampling was not completed in this area. As such, the lateral extent of sub-slab soil gas contamination has not been characterized in these areas. Terracon proposes to prepare a supplement to the VIC Work Plan to conduct sampling of additional Residences immediately adjoining the defined area on the east side of the 300 block of Boston Avenue and the west side of the 400 block of Boston Avenue. The area identified includes approximately 14 Residences. A listing of the Residences included in the expanded study area is provided in Appendix H. The limits of the expanded study area are depicted on Figure 6, Appendix A.



## 7.0 SCHEDULE

Based upon currently available information and previously, the proposed schedule is as follows:

**Table 7-1 Schedule**

Activity	Completion Date/Days to Complete <sup>1</sup>
Complete Indoor Air Sampling per Section 6.3	July 5, 2011
Remove Sampling Ports per Section 6.1	No earlier than July 20, 2011
Receive Analytical Results	August 4, 2011
Receive USEPA Comments on Draft VIC Report	August 4, 2011
Submit Validated Analytical Results to USEPA	August 19, 2011
Submit Supplemental VIC Work Plan per Section 6.5 <sup>2</sup>	September 3, 2011
Submit Final VIC Report to USEPA	September 3, 2011 <sup>3</sup>
Conduct Indoor Air Monitoring per Section 6.2	Semiannually during 1 <sup>st</sup> and 3 <sup>rd</sup> calendar quarters beginning after approval of VIC Report for 2 years, then annually for 3 years

<sup>1</sup> – Completion date based on VIC Work Plan approval date of January 6, 2011.

<sup>2</sup> – Supplemental VIC Work Plan will include schedule for proposed sampling activities.

<sup>3</sup> – If the USEPA does not provide comments on the Draft VIC Report by August 4, 2011, the Final VIC Report shall be submitted to USEPA 30 days after all USEPA comments on the Draft VIC Report are received by Terracon.



## **Appendix A**

### **Figures**

Figure 1 – Topographic Vicinity Map

Figure 2 – Study Area

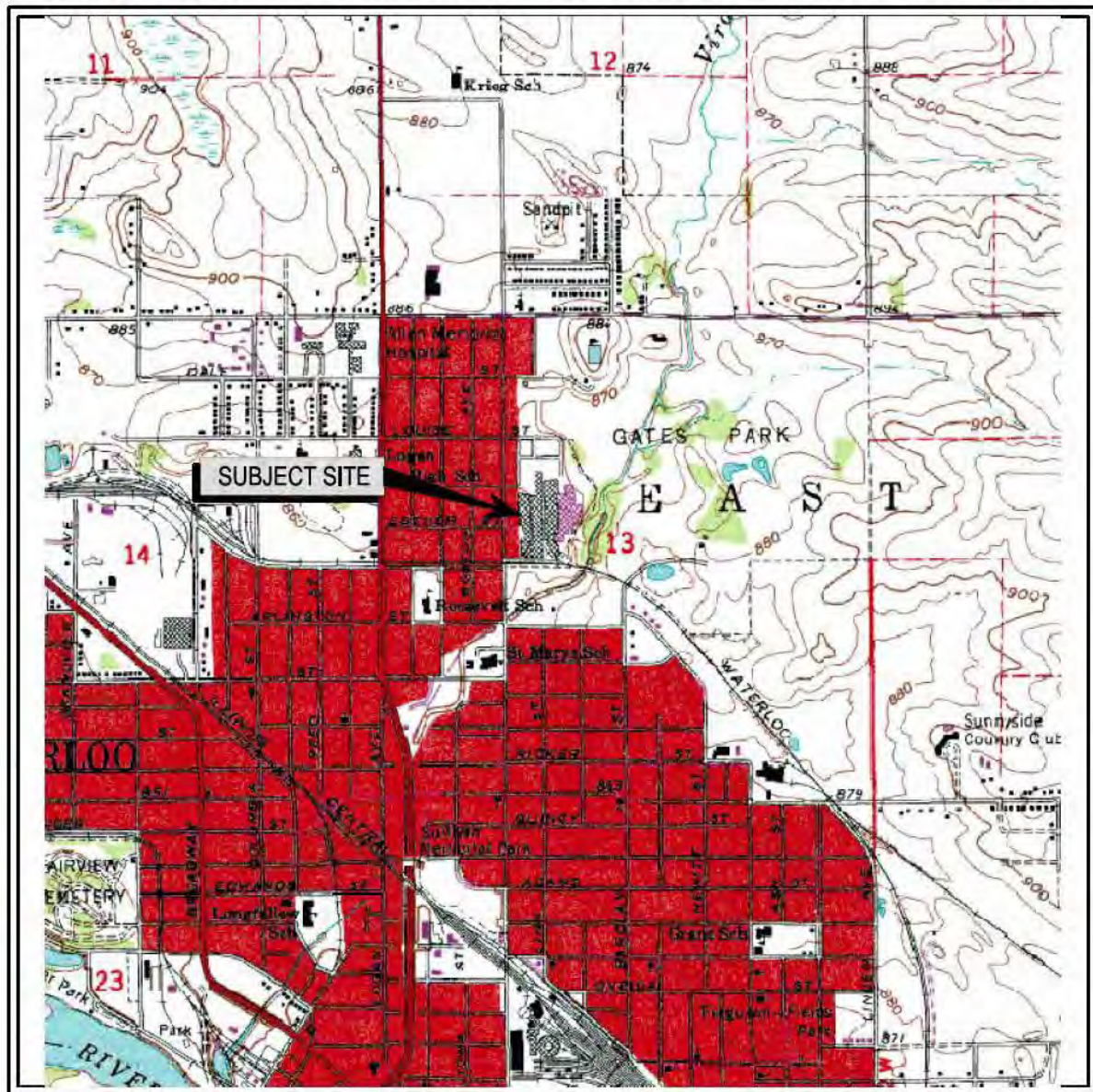
Figure 3 – Sampled Residences

Figure 4 – Sample Results

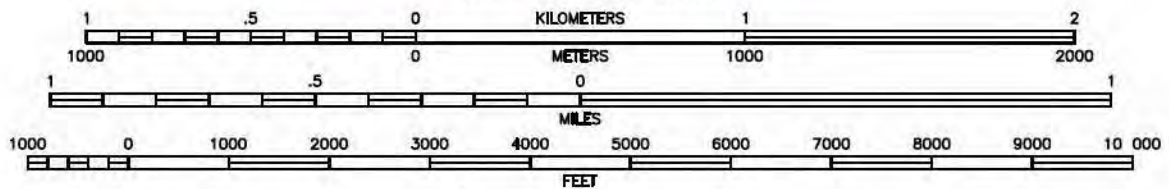
Figure 5 – Proposed Actions Under Decision Matrix

Figure 6 – Proposed Study Area





SCALE 1:24 000



CONTOUR INTERVAL FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
TOPO LINES REPRESENT 10-FOOT CONTOURS

WATERLOO NORTH QUADRANGLE

7.5 MINUTE SERIES (TOPOGRAPHIC)

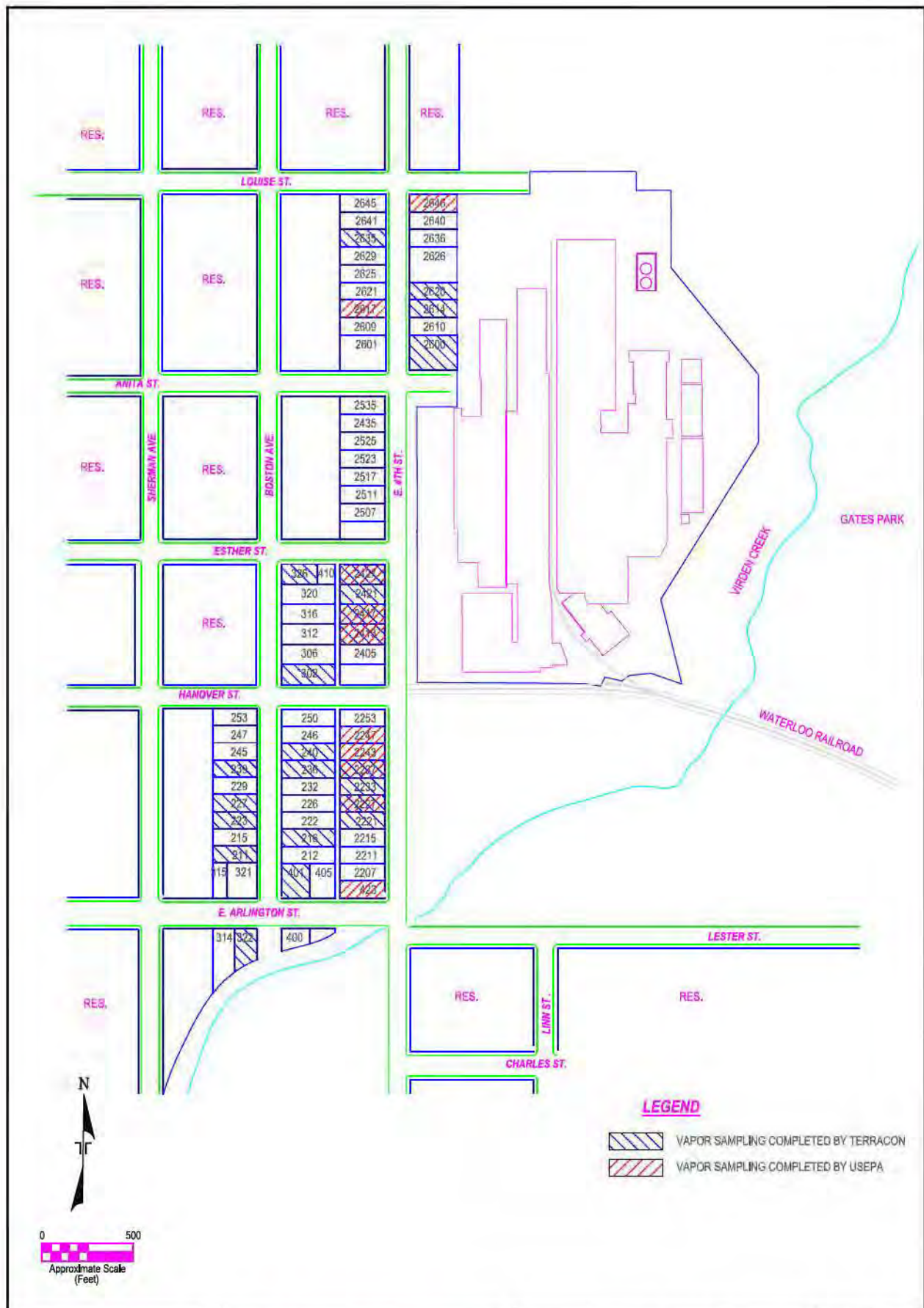


Project Mng'r:	JFB	Project No.	07107020	<div><p>870 40th Avenue Bettendorf, Iowa 52722 (563) 355-0702 (563) 355-4789</p></div>	TOPOGRAPHIC VICINITY MAP		FIG. No.
Drawn By:	JFB	Scale:	AS SHOWN		VAPOR INTRUSION CHARACTERIZATION REPORT		1
Checked By:	JFB	File No.	07107020-T1-FIG1		FORMER CHAMBERLAIN MANUFACTURING FACILITY		
Approved By:	JFB	Date:	JUNE 2011		550 ESTHER ST. WATERLOO, IOWA		









REV.	DATE	BY	DESCRIPTION

870 40th Avenue  
(562) 335-0702

Baldersdorf, Iowa 52722  
(562) 335-0702

**SAMPLED RESIDENCES**

VAPOR INTRUSION CHARACTERIZATION REPORT  
FORMER CHAMBERLAIN MANUFACTURING FACILITY  
550 ESTHER STREET

WATERLOO IOWA

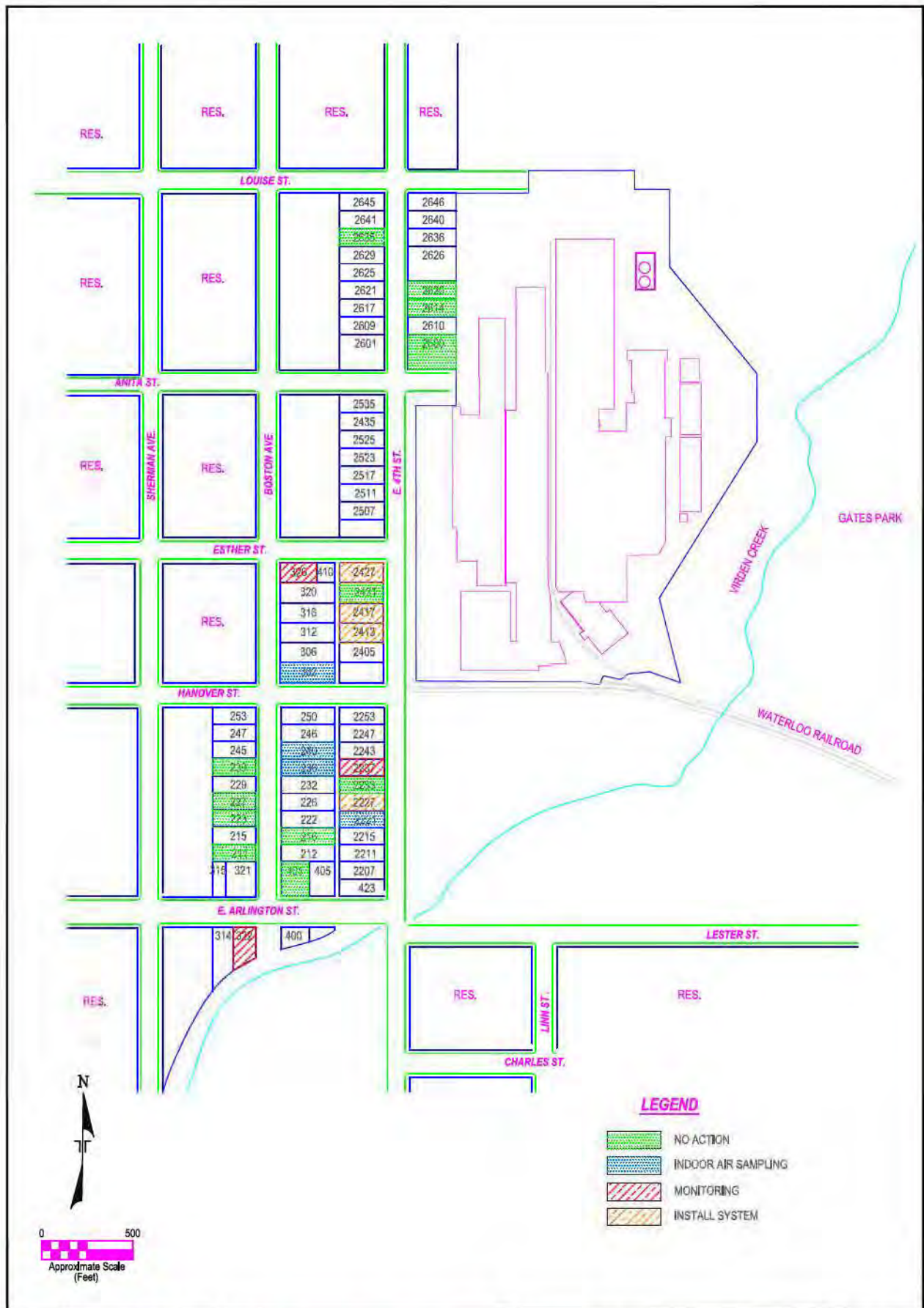
**FIGURE 3**

PROJECT NO.	JFB
DRAWN BY:	JFB
APPROVED BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	0717760
FILE NAME:	0717760-T1-F3
SHEET NO.	3 OF 6









REV.	DATE	BY	DESCRIPTION

**Terracon**  
Consulting Engineers and Scientists

8170 40th Avenue  
(563) 555-0702

Sheldahl, Iowa 52720  
(563) 555-4788

**PROPOSED ACTIONS UNDER DECISION MATRIX**

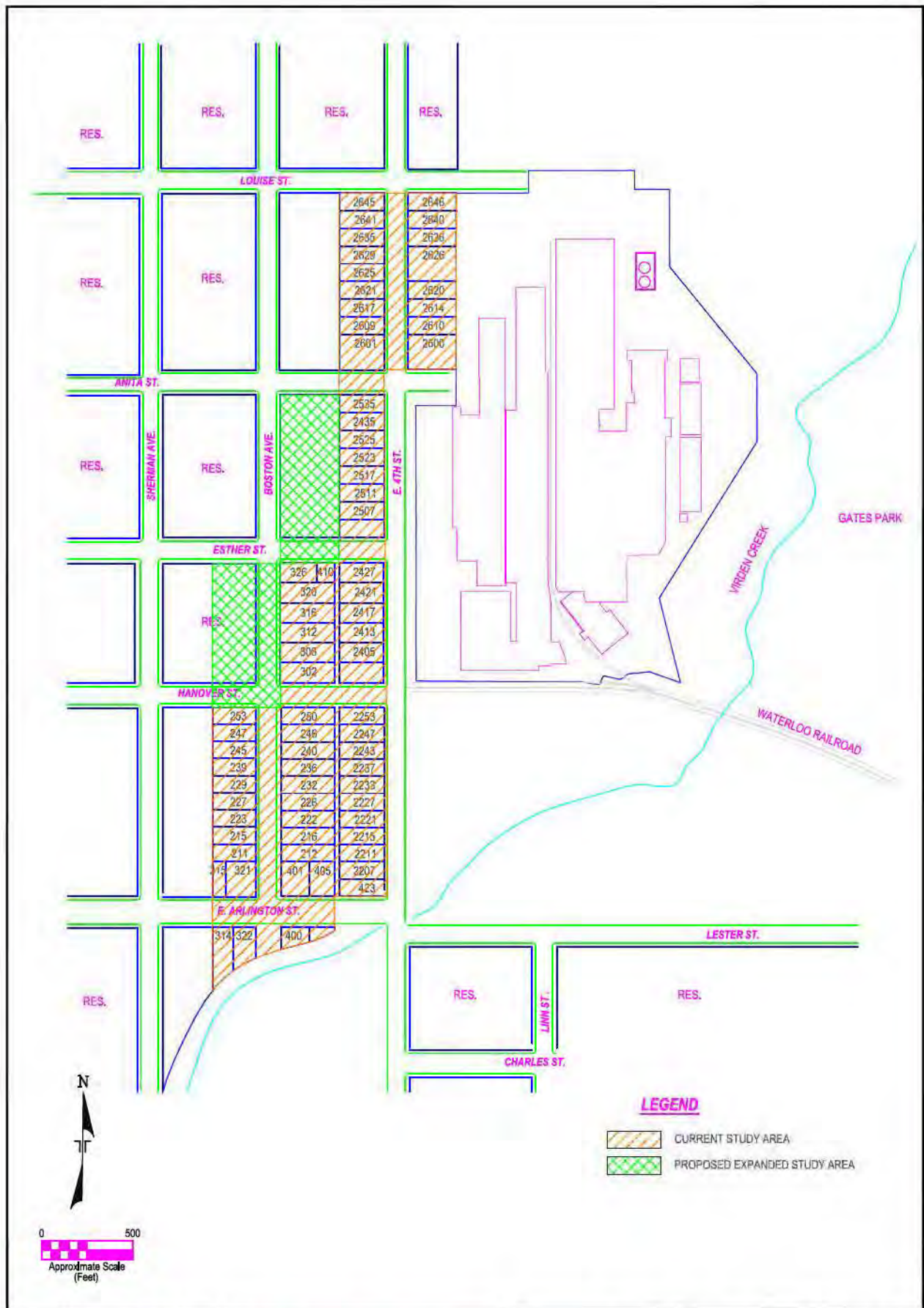
VAPOR INTRUSION CHARACTERIZATION REPORT  
FORMER CHAMBERLAIN MANUFACTURING FACILITY  
550 ESTHER STREET

WATERLOO IOWA

**FIGURE 5**

PROJECT MGR	JFB
DRAWN BY	JFB
APPROV. BY	JFB
SCALE	AS SHOWN
DATE	JUNE 2011
PROJECT NO.	07107030
FILE NAME	07107030-1-FIG5
SHEET NO.	5 OF 6





REV.	DATE	BY	DESCRIPTION

**Terracon**  
Consulting Engineers and Scientists

8170 42nd Avenue  
(563) 555-0702

Stoughton, Iowa 52722  
(563) 365-4780

**PROPOSED STUDY AREA**

VAPOR INTRUSION CHARACTERIZATION REPORT  
FORMER CHAMBERLAIN MANUFACTURING FACILITY  
550 ESTHER STREET

WATERLOO IOWA

FIGURE 6	
PROJECT MGR.	JFB
DRAWN BY:	JFB
APPROVED BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	01101020
FILE NAME:	01101020-14-FIG6
SHEET NO.	6 OF 6



## **Appendix B**

### **Tables**

Table 1 – Sub-Slab Analytical Results

Table 2 – Indoor Air Analytical Results

Table 3 – Ambient Air/Equipment Blank Analytical Results



**TABLE 1**  
**SUB-SLAB ANALYTICAL RESULTS**  
**VAPOR INTRUSION CHARACTERIZATION REPORT**  
**CHAMBERLAIN MANUFACTURING**

	Lab ID	CUE0002-07	CUD1698-05	CUE0116-02	CUD1690-04	CUE0116-01	CUD1690-01	CUD1690-02	CUE0002-09	CUE0002-19	CUD1690-03
	Sample ID	SS-4	SS-6	SS-10	SS-13	SS-15	SS-17	SSD-17	SS-20	SS-21	SS-22
	Date	4/29/2011	4/27/2011	5/2/2011	4/27/2011	5/2/2011	4/27/2011	4/27/2011	4/29/2011	4/29/2011	4/27/2011
Analyte	Units										
Tetrachloroethene	µg/m <sup>3</sup>	41	2.2	0.76	1.7	1.9	1.1	1.4	4.5	0.99	13
Trichloroethene	µg/m <sup>3</sup>	1300	3.8	<0.21	0.096	0.36	<0.21	0.12	8.3	0.86	26
Vinyl chloride	µg/m <sup>3</sup>	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	µg/m <sup>3</sup>	<3.2	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.27	<0.32	<0.32
cis-1,2-Dichloroethene	µg/m <sup>3</sup>	<3.2	1.2	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.37
1,1-Dichloroethene	µg/m <sup>3</sup>	<3.2	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.25
1,1,1-Trichloroethane	µg/m <sup>3</sup>	0.65	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.38
1,1,1-Trichloroethane	µg/m <sup>3</sup>	53	0.42	<0.44	0.31	0.56	0.15	0.18	0.36	0.11	3
1,1,2-Trichloroethane	µg/m <sup>3</sup>	<4.4	0.23	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Sub-Slab Organic Vapors	ppm	0.5	<0.1	0.1	0.5	<0.1	1.2	1.2	0.5	0.1	1.2

NOTES: µg/m<sup>3</sup> - micrograms per cubic meter

ppm - parts per million

SAMPLE ID NOMENCLATURE: First two letters identify sample type - SS for Sub-Slab, IA for Indoor Air, AA for Ambient Air, and EB for Equipment Blank

A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate

The numeric value following the sample type identify the Residence ID Number

The letter or number following the Residence ID Number indicates the location for Indoor Air samples - B for Basement, 1 for 1st Floor, MF for Main Floor



**TABLE 1**  
**SUB-SLAB ANALYTICAL RESULTS**  
**VAPOR INTRUSION CHARACTERIZATION REPORT**  
**CHAMBERLAIN MANUFACTURING**

	Lab ID	CUD1698-02	CUE0002-03	CUE0002-08	CUE0002-14	CUE0002-15	CUE0002-18	CUE0116-12	CUE0116-13	CUE0116-04	CUD1698-01
	Sample ID	SS-28	SS-33	SS-37	SS-38	SSD-38	SS-39	SS-40	SS-45	SS-46	SS-47
	Date	4/27/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	5/3/2011	5/3/2011	5/3/2011	4/27/2011
Analyte	Units										
Tetrachloroethene	µg/m <sup>3</sup>	120	11	28	130	140	2.9	13	36	29	2.8
Trichloroethene	µg/m <sup>3</sup>	8000	61	3.3	0.08	0.52	0.32	96	5700	1100	5.8
Vinyl chloride	µg/m <sup>3</sup>	<16	<1	<0.2	<0.2	<0.2	<0.2	<0.41	<9.3	<5.1	<0.2
trans-1,2-Dichloroethene	µg/m <sup>3</sup>	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.63	<14	<7.9	<0.32
cis-1,2-Dichloroethene	µg/m <sup>3</sup>	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.63	<14	<7.9	<0.32
1,1-Dichloroethene	µg/m <sup>3</sup>	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.63	<14	<7.9	<0.32
1,1-Dichloroethane	µg/m <sup>3</sup>	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.65	<15	<8.1	<0.32
1,1,1-Trichloroethane	µg/m <sup>3</sup>	110	58	3.9	0.24	0.26	<0.44	5	42	13	1.3
1,1,2-Trichloroethane	µg/m <sup>3</sup>	<35	<2.2	<0.44	<0.44	<0.44	<0.44	<0.87	<20	<11	<0.44
Sub-Slab Organic Vapors	ppm	1.5	0.1	0.1	0.2	0.2	0.2	0.2	1.1	<0.1	0.2

NOTES: µg/m<sup>3</sup> - micrograms per cubic meter

ppm - parts per million

SAMPLE ID NOMENCLATURE: First two letters identify sample type - SS for Sub-Slab, IA for Indoor Air, AA for Ambient Air, and EB for Equipment Blank

A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate

The numeric value following the sample type identify the Residence ID Number

The letter or number following the Residence ID Number indicates the location for Indoor Air samples - B for Basement, 1 for 1st Floor, MF for Main Floor

**TABLE 1**  
**SUB-SLAB ANALYTICAL RESULTS**  
**VAPOR INTRUSION CHARACTERIZATION REPORT**  
**CHAMBERLAIN MANUFACTURING**

	Lab ID	CUE0002-10	CUD1698-03	CUD1698-04	CUE0116-03	CUE0188-01	CUE0188-02	Maximum Detected Concentration	Number of Detections	Sub-Slab Screening Level	Detection Limit
	Sample ID	SS-48	SS-56	SS-60	SS-62	SS-67	SS-67D				
	Date	4/29/2011	4/27/2011	4/27/2011	5/2/2011	5/4/2011	5/4/2011				
Analyte	Units										
Tetrachloroethene	µg/m <sup>3</sup>	15	0.83	2.5	0.77	0.43	0.52	140	26 of 26	4.1	0.54
Trichloroethene	µg/m <sup>3</sup>	89	3.8	6.2	<0.21	<0.21	0.081	6000	22 of 26	12	0.215
Vinyl chloride	µg/m <sup>3</sup>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0	0 of 26	1.6	0.204
trans-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.27	1 of 26	630	0.317
cis-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	0.12	<0.32	<0.32	<0.32	<0.32	1.2	3 of 26	630	0.317
1,1-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.25	1 of 26	2,100	0.317
1,1-Dichloroethane	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.65	2 of 26	15	0.324
1,1,1-Trichloroethane	µg/m <sup>3</sup>	32	0.83	8.5	1.4	<0.44	0.098	110	23 of 26	52,000	0.436
1,1,2-Trichloroethane	µg/m <sup>3</sup>	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.23	1 of 26	1.5	0.36
Sub-Slab Organic Vapors	ppm	0.2	0.4	0.1	<0.1	<0.1	<0.1				

**NOTES:** µg/m<sup>3</sup> - micrograms per cubic meter

ppm - parts per million

**SAMPLE ID NOMENCLATURE:** First two letters identify sample type - SS for Sub-Slab, IA for Indoor Air, AA for Ambient Air, and EB for Equipment Blank

A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate

The numeric value following the sample type identify the Residence ID Number

The letter or number following the Residence ID Number indicates the location for Indoor Air samples - B for Basement, 1 for 1st Floor, MF for Main Floor



**TABLE 2**  
**INDOOR AIR ANALYTICAL RESULTS**  
**VAPOR INTRUSION CHARACTERIZATION REPORT**  
**CHAMBERLAIN MANUFACTURING**

	Lab ID	CUE0002-04	CUE0002-05	CUE0002-01	CUE0002-02	CUE0002-17	CUE0002-16	CUE0116-09	CUE0116-08	CUE0116-15
	Sample ID	IA-4-B	IA-4-1	IA-33-B	IA-33-1	IA-38-B	IA-38-MF	IA-B-40	IA-1-40	IA-B-45
	Date	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	5/3/2011	5/3/2011	5/3/2011
Analyte	Units									
Tetrachloroethene	µg/m <sup>3</sup>	0.15	0.26	0.19	0.16	2	1.7	0.13	<0.54	<0.54
Trichloroethene	µg/m <sup>3</sup>	0.42	1	0.22	0.33	0.11	0.14	0.18	0.18	2.1
Vinyl chloride	µg/m <sup>3</sup>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
cis-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	0.35	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,1-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,1-Dichloroethane	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,1,1-Trichloroethane	µg/m <sup>3</sup>	0.094	0.087	0.094	0.067	0.2	0.26	<0.44	<0.44	<0.44
1,1,2-Trichloroethane	µg/m <sup>3</sup>	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44

**NOTES:** µg/m<sup>3</sup> - micrograms per cubic meter

ppm - parts per million

**SAMPLE ID NOMENCLATURE:** First two letters identify sample type - SS for Sub-Slab, IA for Indoor Air, AA for Ambient Air, and EB for Equipment Blank

A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate

The numeric value following the sample type identify the Residence ID Number

The letter or number following the Residence ID Number indicates the location for Indoor Air samples - B for Basement, 1 for 1st Floor, MF for Main Floor

**TABLE 2**  
**INDOOR AIR ANALYTICAL RESULTS**  
**VAPOR INTRUSION CHARACTERIZATION REPORT**  
**CHAMBERLAIN MANUFACTURING**

	Lab ID	CUE0116-14	CUE0116-05	CUE0116-06	CUE0002-11	CUE0002-12	CUE0002-13				
	Sample ID	IA-1-45	IA-B-46	IA-1-46	IA-48-B	IA-48-B-D	IA-48-MF				
	Date	5/3/2011	5/3/2011	5/3/2011	4/29/2011	4/29/2011	4/29/2011				
Analyte	Units							Maximum Detected Concentration	Number of Detections	Sub-Slab Screening Level	Detection Limit
Tetrachloroethene	µg/m <sup>3</sup>	<0.54	0.29	0.75	1.7	2.5	0.69	2.5	12 of 15	0.41	0.54
Trichloroethene	µg/m <sup>3</sup>	1.8	0.86	1.2	0.18	0.2	0.16	2.1	15 of 15	1.2	0.215
Vinyl chloride	µg/m <sup>3</sup>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0	0 of 15	0.165	0.204
trans-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0	0 of 15	63	0.317
cis-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.35	1 of 15	63	0.317
1,1-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0	0 of 15	210	0.317
1,1-Dichloroethane	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0	0 of 15	1.5	0.324
1,1,1-Trichloroethane	µg/m <sup>3</sup>	<0.44	<0.44	1.2	0.13	0.12	0.12	1.2	10 of 15	5200	0.436
1,1,2-Trichloroethane	µg/m <sup>3</sup>	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0	0 of 15	0.15	0.36

**NOTES:** µg/m<sup>3</sup> - micrograms per cubic meter

ppm - parts per million

**SAMPLE ID NOMENCLATURE:** First two letters identify sample type - SS for Sub-Slab, IA for Indoor Air, AA for Ambient Air, and EB for Equipment Blank

A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate

The numeric value following the sample type identify the Residence ID Number

The letter or number following the Residence ID Number indicates the location for Indoor Air samples - B for Basement, 1 for 1st Floor, MF for Main Floor



**TABLE 3**  
**AMBIENT AIR/EQUIPMENT BLANK ANALYTICAL RESULTS**  
**VAPOR INTRUSION CHARACTERIZATION REPORT**  
**CHAMBERLAIN MANUFACTURING**

	Lab ID	CUE0002-06	CUE0116-10	CUE0116-11	CUE0116-07	CUD1698-06	CUE0002-20	CUE0116-16	Maximum Detected Concentration	Number of Detections	Detection Limit
	Sample ID	AA-4	AA-40	AAD-40	AA-46	EB-1	EB-2	EB-3			
	Date	4/29/2011	5/3/2011	5/3/2011	5/3/2011	4/27/2011	4/29/2011	5/3/2011			
Analyte	Units								Maximum Detected Concentration	Number of Detections	Detection Limit
Tetrachloroethene	µg/m <sup>3</sup>	0.19	<0.54	<0.54	<0.54	1.1	0.93	0.57			
Trichloroethene	µg/m <sup>3</sup>	0.088	<0.21	<0.21	<0.21	0.22	<0.21	0.58			
Vinyl chloride	µg/m <sup>3</sup>	<0.2	<0.2	<0.2	<0.2	<0.34	<0.2	<0.2	NA	0 of 4	0.204
trans-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.52	<0.32	<0.32	NA	0 of 4	0.317
cis-1,2-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.52	<0.32	<0.32	NA	0 of 4	0.317
1,1-Dichloroethene	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.52	<0.32	<0.32	NA	0 of 4	0.317
1,1-Dichloroethane	µg/m <sup>3</sup>	<0.32	<0.32	<0.32	<0.32	<0.53	<0.32	<0.32	NA	0 of 4	0.324
1,1,1-Trichloroethane	µg/m <sup>3</sup>	<0.44	<0.44	<0.44	<0.44	<0.72	<0.44	<0.44	NA	0 of 4	0.438
1,1,2-Trichloroethane	µg/m <sup>3</sup>	<0.44	<0.44	<0.44	<0.44	<0.72	<0.44	<0.44	NA	0 of 4	0.36

**NOTES:** µg/m<sup>3</sup> - micrograms per cubic meter  
ppm - parts per million

**SAMPLE ID NOMENCLATURE:** First two letters identify sample type - SS for Sub-Slab, IA for Indoor Air, AA for Ambient Air, and EB for Equipment Blank-  
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate  
The numeric value following the sample type identify the Residence ID Number  
The letter or number following the Residence ID Number indicates the location for Indoor Air samples - B for Basement, 1 for 1st Floor, MF for Main Floor

## **Appendix C**

### **Letter to Residences Regarding Sampling and Access**





February 4, 2011

Certified Mail/Return Receipt Requested



Re: Residential Sampling Request

As you may know, the United States Environmental Protection Agency ("EPA") recently asked Chamberlain Manufacturing Corporation to do environmental testing of soil vapors beneath certain homes in your neighborhood near the 550 Esther Street property, once owned and operated by Chamberlain Manufacturing and currently owned by the City of Waterloo. As we understand you are the owner(s) and resident(s) of the residence at [REDACTED], we are writing to describe the process and timing for the sampling, should you choose to have us conduct it.

In the next few months, Terracon Consultants, Inc., a licensed and experienced environmental consulting and engineering company, will be in your neighborhood conducting this sampling. The sampling will provide data to help determine if action may be needed to reduce the potential of certain chemicals entering your home. We are requesting your permission to do this sampling in your home.

The sampling, which is completely voluntary, involves two initial visits of about an hour or less each by courteous and experienced professionals who will display proper identification and respect you and your home.

Here's how it works:

*Initial Visit: Sampling Port Installation and Questionnaire*

On the first visit, we will install a small sample "port" in your home. The port is installed after wet drilling a 1-inch opening in the concrete floor of your basement or the lowest level of your home such as a crawl-space or slab. After installing the port, the voids are then backfilled with sand and concrete, which will set for at least 48 hours. We will clean-up the work area.

We will also ask for your assistance as our field personnel complete a questionnaire about your home. The questionnaire seeks information regarding your home and the presence of chemicals containing volatile organic compounds, such as paints, glues, stored fuels and dry-cleaned clothes. According to EPA, these household products can contribute to indoor air quality problems.

*Additional Visit(s): Sample Collection*

About two days after the first visit, we will return for about 45 minutes to collect a sample from the port. In some instances, we will also take indoor and outdoor air samples. These indoor and outdoor air samples are collected by small canisters that we would leave at your home for 24-hours and would then return to collect.



Terracon Consultants, Inc. 870 40<sup>th</sup> Avenue Bettendorf, Iowa 52722  
[www.terracon.com](http://www.terracon.com)

Geotechnical



Environmental



Construction Materials



Facilities



## Residential Sampling Request

February 4, 2011 ■ Terracon Project No. 07107020



Depending on the results of the sampling, one or more additional sampling events may be needed to confirm the results of the previous event. If necessary, we will contact you and make arrangements for any additional sampling events.

Once EPA agrees that sampling in the area is complete, we will remove the sampling port and seal the area where the port was installed at your request.

The results of this sampling will be reviewed by EPA. Following EPA review, a copy of the results will be provided for your records. If the sampling identifies any vapors beneath your home that warrant attention, we will contact you and offer you an EPA-approved system, usually located in your basement, that is designed to reduce any vapors. The system would be installed at no cost to you.

It is important to know that this sampling is a precautionary step. The information we obtain will help us gain a fuller understanding of the conditions in your neighborhood and whether any additional action is needed.

If you would like to have the sampling performed in your home, please complete the enclosed request form and access agreement and mail it to:

Terracon Consultants, Inc.  
870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

In order to facilitate scheduling, we ask that you return the sampling request form no later than March 11, 2011. After we receive the form, we will call you to schedule a mutually convenient time for us to meet at your home to begin the sampling process.

We appreciate your cooperation in this process. Please contact John Brimeyer at (563) 355-4852 if you have any questions.

Sincerely,  
**Terracon Consultants, Inc.**

A handwritten signature in blue ink that reads "John F. Brimeyer".

John F. Brimeyer, PE  
Environmental Manager



## Sampling Request Form

**Waterloo, IA 50703**

*(Please complete and return by March 11, 2011)*

We hereby provide the City of Waterloo, Chamberlain Manufacturing Corporation, the United States Environmental Protection Agency and their authorized representatives permission to enter the residence listed above at a mutually convenient time for the purpose of collecting samples and completing the questionnaire as outlined in Terracon's letter dated February 4, 2011 and the enclosed access agreement.

**Signature of Co-Owner/Resident**

**Signature of Co-Owner/Resident**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
**Print Name (if applicable)**

Telephone:(Day)\_\_\_\_\_

Telephone:(Day)\_\_\_\_\_

(Evening) \_\_\_\_\_

(Evening) \_\_\_\_\_

Dated: \_\_\_\_\_, 2011

Dated: \_\_\_\_\_, 2011

**ACCESS AGREEMENT**Date: 2/4/11**DEFINITIONS**

The property to which access is granted is: [REDACTED] ("Property").

The Legal Owner(s) of the Property or person/entity with legal authority to grant access to the Property is: [REDACTED] ("Grantor(s)").

The services to be conducted on the Property are generally described as follows: Collection of samples as outlined in the Resident Sampling Request letter dated February 4, 2011. ("Services").

The entity granted access for the purposes of performing the Services is Terracon Consultants, Inc., which shall include its employees, agents, and subcontractors ("Grantee").

The Services are performed for the benefit of Chamberlain ("Client"), pursuant to the Agreement for Services between Terracon and Client, dated September 23, 2010.

**AGREEMENTS**

By its signature below, Grantor represents it has authority to, and does, grant access to the Property to Grantee for the purpose of performing the Services. Grantor agrees that:

- Grantee may bring sampling equipment on the Property to recover and collect soil, water, and other samples, and perform other actions related to the exploration of surface or subsurface conditions on the Property, as necessary to perform the Services. Grantee may also photograph portions of the Property and ask Grantor to assist in completing a questionnaire regarding activities at the property.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.
- Grantor will not interfere with any of the activities of Grantee or undertake any actions regarding the use of Property that would endanger the health, safety, or welfare of the Grantee employees, agents, or subcontractors, or damage their equipment, materials, or property.
- Grantor will indemnify and hold Grantee harmless with respect to activities of Grantee.

By its signature below, Grantee agrees:

- That upon completion of Services and activities authorized by this Access Agreement, Grantee will remove all material and equipment utilized by Grantee from the Property, with the exception of ground markers that may be placed on the premises to designate sampling areas,
- Grantee will remove boring spoils that accumulate around the bore holes.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.

The Services and field activities authorized under this Access Agreement may begin after signature of Grantor. Access is granted until Services are completed.

**SIGNATURES**

**Terracon Consultants, Inc. :**

By: \_\_\_\_\_ Date: 2/4/11  
Name/Title: John F. Brimeyer, Environmental Manager  
Address: 870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722  
Phone: 563.355.4852 Fax: 563.355.4789

**Grantor (Owner):**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: [REDACTED]  
Address: [REDACTED]  
Waterloo, IA 50703  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Grantor (Co-Owner):**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: [REDACTED]  
Address: [REDACTED]  
Waterloo, IA 50703  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_





February 4, 2011

Certified Mail/Return Receipt Requested



Certified Mail/Return Receipt Requested



Re: Residential Sampling Request

As you may know, the United States Environmental Protection Agency ("EPA") recently asked Chamberlain Manufacturing Corporation to do environmental testing of soil vapors beneath certain homes in your neighborhood near the 550 Esther Street property, once owned and operated by Chamberlain Manufacturing and currently owned by the City of Waterloo. As we understand you are the owner(s) and resident(s) of the residence at [REDACTED] we are writing to describe the process and timing for the sampling, should you choose to have us conduct it.

In the next few months, Terracon Consultants, Inc., a licensed and experienced environmental consulting and engineering company, will be in your neighborhood conducting this sampling. The sampling will provide data to help determine if action may be needed. We are requesting your permission to do this sampling in your home.

The sampling, which is completely voluntary, involves two initial visits of about an hour or less each by courteous and experienced professionals who will display proper identification and respect you and your home.

Here's how it works:

*Initial Visit: Sampling Port Installation and Questionnaire*

On the first visit, we will install a small sample "port" in your home. The port is installed after wet drilling a 1-inch opening in the concrete floor of your basement or the lowest level of your home such as a crawl-space or slab. After installing the port, the voids are then backfilled with sand and concrete, which will set for at least 48 hours. We will clean-up the work area.

We will also ask for your assistance as our field personnel complete a questionnaire about your home. The questionnaire seeks information regarding your home and the presence of chemicals containing volatile organic compounds, such as paints, glues, stored fuels and dry-cleaned clothes. According to EPA, these household products can contribute to indoor air quality problems.

*Additional Visit(s): Sample Collection*

About two days after the first visit, we will return for about 45 minutes to collect a sample from the port. In some instances, we will also take indoor and outdoor air samples. These indoor and outdoor air samples are collected by small canisters that we would leave at your home for 24-hours and would then return to collect.



Terracon Consultants, Inc. 870 40<sup>th</sup> Avenue Bettendorf, Iowa 52722  
[www.terracon.com](http://www.terracon.com)

Geotechnical



Environmental



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Facilities



## Residential Sampling Request

February 4, 2011 ■ Terracon Project No. 07107020



Depending on the results of the sampling, one or more additional sampling events may be needed to confirm the results of the previous event. If necessary, we will contact you and make arrangements for any additional sampling events.

Once EPA agrees that sampling in the area is complete, we will remove the sampling port and seal the area where the port was installed at your request.

The results of this sampling will be reviewed by EPA. Following EPA review, a copy of the results will be provided for your records. If the sampling identifies any vapors beneath your home that warrant attention, we will contact you and offer you an EPA-approved system, usually located in your basement, that is designed to reduce any vapors. The system would be installed at no cost to you.

It is important to know that this sampling is a precautionary step. The information we obtain will help us gain a fuller understanding of the conditions in your neighborhood and whether any additional action is needed.

If you would like to have the sampling performed in your home, please complete the enclosed request form and access agreement and mail it to:

Terracon Consultants, Inc.  
870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

We have included separate sampling forms for each party.

In order to facilitate scheduling, we ask that you return the sampling request form no later than March 11, 2011. After we receive the form, we will call you to schedule a mutually convenient time for us to meet at your home to begin the sampling process.

We appreciate your cooperation in this process. Please contact John Brimeyer at (563) 355-4852 if you have any questions.

Sincerely,  
**Terracon Consultants, Inc.**

A handwritten signature in blue ink that reads "John F. Brimeyer".

John F. Brimeyer, PE  
Environmental Manager



## Sampling Request Form for Owner(s)

**Waterloo, IA 50703**

*(Please complete and return by March 11, 2011)*

We hereby provide the City of Waterloo, Chamberlain Manufacturing Corporation, the United States Environmental Protection Agency and their authorized representatives permission to enter the residence listed above at a mutually convenient time for the purpose of collecting samples and completing the questionnaire as outlined in Terracon's letter dated February 4, 2011 and the enclosed access agreement.

**Signature of Owner**

\_\_\_\_\_

\_\_\_\_\_

Telephone:(Day)\_\_\_\_\_

(Evening)\_\_\_\_\_

Dated: \_\_\_\_\_, 2011

**Signature of Co-Owner**

\_\_\_\_\_

\_\_\_\_\_  
**Print Name (if applicable)**

Telephone:(Day)\_\_\_\_\_

(Evening)\_\_\_\_\_

Dated: \_\_\_\_\_, 2011

## Sampling Request Form for Resident(s)

**Waterloo, IA 50703**

*(Please complete and return by March 11, 2011)*

We hereby provide the City of Waterloo, Chamberlain Manufacturing Corporation, the United States Environmental Protection Agency and their authorized representatives permission to enter the residence listed above at a mutually convenient time for the purpose of collecting samples and completing the questionnaire as outlined in Terracon's letter dated February 4, 2011 and the enclosed access agreement.

**Signature of Resident**

\_\_\_\_\_

**Signature of Co-Resident**

\_\_\_\_\_

**Print Name**

\_\_\_\_\_

**Print Name (if applicable)**

\_\_\_\_\_

Telephone:(Day)\_\_\_\_\_

(Evening)\_\_\_\_\_

Telephone:(Day)\_\_\_\_\_

(Evening)\_\_\_\_\_

Dated: \_\_\_\_\_, 2011

Dated: \_\_\_\_\_, 2011



**ACCESS AGREEMENT**Date: 2/4/11**DEFINITIONS**

The property to which access is granted is: [REDACTED] ("Property").

The Legal Owner(s) of the Property or person/entity with legal authority to grant access to the Property is: [REDACTED] ("Grantor(s)").

The services to be conducted on the Property are generally described as follows: Collection of samples as outlined in the Resident Sampling Request letter dated February 4, 2011. ("Services").

The entity granted access for the purposes of performing the Services is Terracon Consultants, Inc., which shall include its employees, agents, and subcontractors ("Grantee").

The Services are performed for the benefit of Chamberlain Manufacturing Corporation ("Client"), pursuant to the Agreement for Services between Terracon and Client, dated September 23, 2010.

**AGREEMENTS**

By its signature below, Grantor represents it has authority to, and does, grant access to the Property to Grantee for the purpose of performing the Services. Grantor agrees that:

- Grantee may bring sampling equipment on the Property to recover and collect soil, water, and other samples, and perform other actions related to the exploration of surface or subsurface conditions on the Property, as necessary to perform the Services. Grantee may also photograph portions of the Property and ask Grantor to assist in completing a questionnaire regarding activities at the property.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.
- Grantor will not interfere with any of the activities of Grantee or undertake any actions regarding the use of Property that would endanger the health, safety, or welfare of the Grantee employees, agents, or subcontractors, or damage their equipment, materials, or property.
- Grantor will indemnify and hold Grantee harmless with respect to activities of Grantee.

By its signature below, Grantee agrees:

- That upon completion of Services and activities authorized by this Access Agreement, Grantee will remove all material and equipment utilized by Grantee from the Property, with the exception of ground markers that may be placed on the premises to designate sampling areas,
- Grantee will remove boring spoils that accumulate around the bore holes.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.

The Services and field activities authorized under this Access Agreement may begin after signature of Grantor. Access is granted until Services are completed.

**SIGNATURES**

Terracon Consultants, Inc. :

By: \_\_\_\_\_ Date: 2/4/11  
Name/Title: John F. Brimeyer, Environmental Manager  
Address: 870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722  
Phone: 563.355.4852 Fax: 563.355.4789

**Grantor (Owner):**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Grantor (Resident):**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Grantor (Co-Owner):**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Grantor (Co-Resident):**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

PROPERTY		OWNER				RENTER, IF APPLICABLE	
ID	Address	Owner	Owner Address	Owner City, State	Sampling Approved by Owner?	Resident	Sampling Approved by Renter?
1	314 E. Arlington St.		PO Box 532	Waterloo, IA 50704	No		No
2	315 E. Arlington St.		1956 Winston Place	Waterloo, IA 50701	No		No
3	321 E. Arlington St.		321 E. Arlington St.	Waterloo, IA 50703	No		NA
4	322 E. Arlington St.		322 E. Arlington St.	Waterloo, IA 50703	Yes		NA
5	400 E. Arlington St.		312 W 1st Street	Cedar Falls, IA 50613	No		No
6	401 E. Arlington St.		2516 Ashland Ave.	Cedar Falls, IA 50613	Yes		No
7	405 E. Arlington St.		405 E. Arlington St.	Waterloo, IA 50703	No		NA
8	423 E. Arlington St.		423 E. Arlington St.	Waterloo, IA 50703	Yes		NA
9	410 Esther St.		829 Cloverdale Ave.	Waterloo, IA 50703	Yes		No
10	211 Boston Ave.		211 Boston Ave.	Waterloo, IA 50703	Yes		NA
11	212 Boston Ave.		1956 Winston Place	Waterloo, IA 50701	No		No
12	215 Boston Ave.		215 Boston Ave.	Waterloo, IA 50703	No		No
13	216 Boston Ave.		603 N Linn	New Hampton, IA 50659	Yes		No
14	222 Boston Ave.		1956 Winston Place	Waterloo, IA 50701	No		No
15	223 Boston Ave.		223 Boston Ave.	Waterloo, IA 50703	Yes		NA
16	226 Boston Ave.		226 Boston Ave.	Waterloo, IA 50703	No		NA
17	227 Boston Ave.		31942 Liberty Ave.	Parkersburg, IA 50665	Yes		Yes
18	229 Boston Ave.		PO Box 567	Gilbertville, IA 50634	No		No
19	232 Boston Ave.		232 Boston Ave.	Waterloo, IA 50703	No		NA
20	236 Boston Ave.		236 Boston Ave.	Waterloo, IA 50703	Yes		NA
21	239 Boston Ave.		239 Boston Ave.	Waterloo, IA 50703	Yes		NA
22	240 Boston Ave.		240 Boston Ave.	Waterloo, IA 50703	Yes		NA
23	245 Boston Ave.		245 Boston Ave.	Waterloo, IA 50703	Yes		NA
24	246 Boston Ave.		246 Boston Ave.	Waterloo, IA 50703	No		NA
25	249 Boston Ave.		249 Boston Ave.	Waterloo, IA 50703	No		NA
26	250 Boston Ave.		250 Boston Ave.	Waterloo, IA 50703	No		No
27	253 Boston Ave.		253 Boston Ave.	Waterloo, IA 50703	Yes		NA
28	302 Boston Ave.		302 Boston Ave.	Waterloo, IA 50703	Yes		NA
29	306 Boston Ave.		306 Boston Ave.	Waterloo, IA 50703	No		NA
30	312 Boston Ave.		5216 LaFayette Road	Waterloo, IA 50707	No		No
31	316 Boston Ave.		316 Boston Ave.	Waterloo, IA 50703	No		NA
32	320 Boston Ave.		PO Box 567	Gilbertville, IA 50634	No		No
33	326 Boston Ave.		326 Boston Ave.	Waterloo, IA 50703	Yes		NA
34	2207 E. 4th St.		2207 E. 4th St.	Waterloo, IA 50703	No		NA
35	2211 E. 4th St.		2245 Burton Ave.	Waterloo, IA 50703	No		No
36	2215 E. 4th St.		2215 E. 4th St.	Waterloo, IA 50703	No		NA
37	2221 E. 4th St.		2221 E. 4th St.	Waterloo, IA 50703	Yes		NA
38	2227 E. 4th St.		2227 E. 4th St.	Waterloo, IA 50703	Yes		NA



PROPERTY		OWNER				RENTER, IF APPLICABLE	
ID	Address	Owner	Owner Address	Owner City, State	Sampling Approved by Owner?	Resident	Sampling Approved by Renter?
39	2233 E. 4th St.		2233 E. 4th St.	Waterloo, IA 50703	Yes		NA
40	2237 E. 4th St.		2237 E. 4th St.	Waterloo, IA 50703	No		No
41	2243 E. 4th St.		2243 E. 4th St.	Waterloo, IA 50703	No		NA
42	2247 E. 4th St.		2247 E. 4th St.	Waterloo, IA 50703	No		NA
43	2253 E. 4th St.		2207 West 3rd St.	Cedar Falls, IA 50613	No		No
44	2405 E. 4th St.		500 Pine St.	Waterloo, IA 50703	No		No
45	2413 E. 4th St.		2413 E. 4th St.	Waterloo, IA 50703	Yes		NA
46	2417 E. 4th St.		2128 Yorkshire Dr.	Cedar Falls, IA 50613	Yes		No
47	2421 E. 4th St.		2421 E. 4th St.	Waterloo, IA 50703	Yes		NA
48	2427 E. 4th St.		2427 E. 4th St.	Waterloo, IA 50703	Yes		NA
49	2507 E. 4th St.		2507 E. 4th St.	Waterloo, IA 50703	No		NA
50	2511 E. 4th St.		2511 E. 4th St.	Waterloo, IA 50703	No		NA
51	2515 E. 4th St.		100 Tanglewood Dr.	Freeport, IL 61032	No		No
52	2523 E. 4th St.		416 Sullivan Ave #206	Waterloo, IA 50701	No		No
53	2525 E. 4th St.		2525 E. 4th St.	Waterloo, IA 50703	No		NA
54	2533 E. 4th St.		2533 E. 4th St.	Waterloo, IA 50703	No		NA
55	2535 E. 4th St.		PO Box 622	Cedar Falls, IA 50613	No		No
56	2600 E. 4th St.		2600 E. 4th St.	Waterloo, IA 50703	Yes		NA
57	2601 E. 4th St.		2601 E. 4th St.	Waterloo, IA 50703	No		NA
58	2609 E. 4th St.		2609 E. 4th St.	Waterloo, IA 50703	No		NA
59	2610 E. 4th St.		404 Union St. PO Box 1	Ionia, IA 50645	No		No
60	2614 E. 4th St.		323 Progress Ave.	Waterloo, IA 50701	Yes		No
61	2617 E. 4th St.		2617 E. 4th St.	Waterloo, IA 50703	No		NA
62	2620 E. 4th St.		448 Hawthorn Lane	Grayson, GA 30017	No		Yes
63	2621 E. 4th St.		2621 E. 4th St.	Waterloo, IA 50703	No		NA
64	2625 E. 4th St.		425 1/2 Webster St.	Waterloo, IA 50703	No		No
65	2626 E. 4th St.		315 West 5th St.	Waterloo, IA 50702	No		No
66	2629 E. 4th St.		2629 E. 4th St.	Waterloo, IA 50703	No		NA
67	2635 E. 4th St.		2635 E. 4th St.	Waterloo, IA 50703	Yes		NA
68	2636 E. 4th St.		PO Box 567	Gilbertville, IA 50634	No		No
69	2640 E. 4th St.		2798 200th St.	Dysart, IA 52224	No		No
70	2641 E. 4th St.		2641 E. 4th St.	Waterloo, IA 50703	No		NA
71	2645 E. 4th St.		2645 E. 4th St.	Waterloo, IA 50703	No		NA
72	2646 E. 4th St.		33871 302nd St.	Cedar Falls, IA 50613	Yes		No

## **Appendix D**

### **Completed Occupied Dwelling Questionnaires**



4

## OCCUPIED DWELLING QUESTIONNAIRE

### Indoor Air Assessment Survey

Date: 4/26/2011

1. Name: [REDACTED]

Address: 322 E Arlington

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? a.m. \_\_\_\_\_ At: Work ☐ or Home ☒?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?

4. Total number of occupants/persons at this location? 1  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_

5. How long have you lived at this location? 36

#### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1

Basement? Yes ☒ No ☐

Crawl Space? Yes ☒ No ☐

If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: ~1940 years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☒, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):

Concrete slab ☒

Fieldstone ☐

Concrete block ☐

- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒  
*puddles when constant rain*

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐ *w/ heavy rain*  
 Yes, occasionally (1-2 times/yr) ☒  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_



22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
~~Waterproofed~~ \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, termites  
 and approximate date of service ~5 yrs ago
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☐ No ☒
37. Smoking in Home:  
 None ☒, Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product \_\_\_\_\_ Frequency of Use

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often



Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	<u>Often</u>
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often - Bleach

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Spray-on oven cleaners	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☐  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☒ - *plugs*  
 Washing/waxing floors ☐  
 Other ☐

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

appt time @ 1:30 p.

→ No response @ 1:30  
" " @ 2:00  
" " @ 2:30

6

## OCCUPIED DWELLING QUESTIONNAIRE

### Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [REDACTED]

Address: 401 E, Arlington ST.

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? Evening At: Work ☐ or Home ☒

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?

4. Total number of occupants/persons at this location? 1  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_

5. How long have you lived at this location? 20

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1

Basement? Yes ☒ No ☐

Crawl Space? Yes ☐ No ☐

If Yes, under how much of the house's area? 20 %

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply): unknown  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):

Concrete slab ☒

Fieldstone ☐

Concrete block ☐



- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒ *not known*  
 If yes, please describe what you use the well for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☐ Not used ☐ Unknown ☒
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
 If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? 1  
 How many are used for more than 2 hours/day? no
17. Is the basement floor (check all that apply) concrete ☒ tile ☐ carpeted ☐ dirt ☐ other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐ cement block ☐ stone ☐ wood ☐ brick ☐ other ☐ appear to be cement block?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☒  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐ *whenever you get a good rain through walls*  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒  
 Wall cracks ☒ Sump ☐ Floor drain ☒ Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
If yes, please specify what was done, where in the home, and what month:  
\_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
Yes, use dry-cleaning regularly (at least weekly) ☐  
Yes, use dry-cleaning infrequently (monthly or less) ☐  
Yes, work at a dry cleaning service ☐  
No ☒
26. Does anyone in your home use solvents at work?  
Yes ☐ If yes, how many persons \_\_\_\_\_  
No ☒ If no, go to question 28
27. ~~If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐~~
28. Where is the washer/dryer located?  
Basement ☒  
Upstairs utility room ☐  
Kitchen ☐  
Garage ☐  
Use a Laundromat ☐  
Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☐ No ☒
30. What type(s) of home heating do you have (check all that apply)  
Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
Heat conveyance system: Forced hot air ☒  
Forced hot water ☐  
Steam ☐  
Radiant floor heat ☐  
Wood stove ☐  
Coal furnace ☐  
Fireplace ☐  
Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☐  
 Window air conditioning unit(s) ☒  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☐, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termites or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service termite ~ 15 years ago
34. Water Heater Type: Gas ☐, Electric ☒, By furnace ☐, Other 2 years old  
☐ \_\_\_\_\_  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
~~Does it vent to the outdoors? Yes ☐ No ☒~~
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☐ No ☐ every now and then occasionally
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☒

Washing/waxing floors ☒

Other ☐ \_\_\_\_\_

*Refinishing floor, just sanded*

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/28/11

1. Name: [REDACTED]  
Address: 211 Boston Avenue

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☒ after 3:30
3. Are you the Owner ☒ Renter ☐, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?
4. Total number of occupants/persons at this location? 2  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_
5. How long have you lived at this location? 25 years

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒ Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_
7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☒  
If Yes, under how much of the house's area? 100 %
8. Age of Home/Structure: 1950 years, Not sure/Unknown ☐
9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒ Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_
10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐  
Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
Public water supply ☒  
Private well ☐  
Bottled water ☐  
Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
Yes ☐ No ☒  
If yes, please describe what you use the well  
for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 1  
How many are used for more than 2 hours/day? no
17. Is the basement floor (check all that apply) concrete ☒ tile ☐, carpeted ☐, dirt ☐,  
other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
Yes, frequently (3 or more times/yr) ☒  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☐  
No ☐
20. Does the basement ever flood (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☐  
No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
(describe) \_\_\_\_\_  
*by washer*



22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
- ~~27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐~~
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify it's warm
32. Do you use any of the following? Room fans ☒ Ceiling fans ☒ Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒ Electric ☐ By furnace ☐ Other ☐  
 Water heater location: Basement ☒ Upstairs utility room ☐ Garage ☐ Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐ Gas ☒ Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☐ fan above stove in ceiling  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☐ Rare (only guests) ☐ Moderate (residents light smokers) ☒  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐ glade mister / spray
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐ soldering ☐ welding ☐ model glues ☐ paint ☐ spray paint ☐  
 wood finishing ☐ Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often



Aerosol deodorizers	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Nail polish remover	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Hair sprays	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☒  
 Washing/waxing floors ☒  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/26/2011

1. Name: [REDACTED]

Address: 216 Boston Ave

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? evening At: Work ☐ or Home ☐?

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?

4. Total number of occupants/persons at this location? 5  
Number of children? 4 Ages? 16, 15, 13, 5

5. How long have you lived at this location? ~6 mos

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☐ unknown  
If Yes, under how much of the house's area? \_\_\_\_\_%

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☒, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐



- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 4 - 1 family rm, 2 storage rm, 1 utility rm  
 How many are used for more than 2 hours/day? 0
17. Is the basement floor (check all that apply) concrete ☒ tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☒  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
painted prior to moving in & remodel
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☐ No ☒. If yes, please check the appropriate type(s)  
 Central air conditioning ☐ *there is central but not using*  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, unknown - landlord said he sprayed  
 and approximate date of service but she doesn't know for what
34. Water Heater Type: Gas ☒ Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒, Heavy (at least one heavy smoker in household) ☐ *in basement or outside*
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☐  
 Washing/waxing floors ☒  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4-27-11

1. Name: [REDACTED]

Address: 223 Boston Ave

Home Phone: [REDACTED] Work Phone: —

2. What is the best time to call to speak with you? evenings At: Work ☐ or Home ☒

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) after 5pm  
of this Home/Structure?

4. Total number of occupants/persons at this location? 4  
Number of children? 2 Ages? 18/12

5. How long have you lived at this location? 37 years

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐

7. Home/Structure Description: number of floors 1

Basement? Yes ☒ No ☐

Crawl Space? Yes ☐ No ☒

If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: approximately late 50s years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐

10. Foundation Construction (check all that apply):

Concrete slab ☒

Fieldstone ☐

Concrete block ☐

- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐? *basement side finish*
16. If finished, how many rooms are in the basement? 1  
 How many are used for more than 2 hours/day? yes *utility room/living room*
17. Is the basement floor (check all that apply) concrete ☒, tile ☒, carpeted ☒, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_? *in utility room*
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐? *in bedroom*
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☒  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☒, Sump ☒, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_ *Sump pump in bedroom underneath carpet*



- Might have some in storage closet*
22. Are any of the following used or stored in the basement (check all that apply)  
Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☒  
*Hand spray disinfectant.*
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
If yes, please specify what was done, where in the home, and what month:  
\_\_\_\_\_  
\_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
Yes, use dry-cleaning regularly (at least weekly) ☐  
Yes, use dry-cleaning infrequently (monthly or less) ☐  
Yes, work at a dry cleaning service ☐  
No ☒
26. Does anyone in your home use solvents at work?  
Yes ☐ If yes, how many persons \_\_\_\_\_  
No ☒ If no, go to question 28
- ~~27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐~~
28. Where is the washer/dryer located?  
Basement ☒  
Upstairs utility room ☐  
Kitchen ☐  
Garage ☐  
Use a Laundromat ☐  
Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
Heat conveyance system: Forced hot air ☒  
Forced hot water ☐  
Steam ☐  
Radiant floor heat ☐  
Wood stove ☐  
Coal furnace ☐  
Fireplace ☐  
Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify kitchen occasionally
32. Do you use any of the following? Room fans ☒ Ceiling fans ☒ Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒ occasionally
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒ Electric ☐ By furnace ☐ Other ☐  
 Water heater location: Basement ☒ Upstairs utility room ☐ Garage ☐ Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐ Gas ☒ Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒ fan above stove  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☐ Rare (only guests) ☒ Moderate (residents light smokers) ☐  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☐ No ☒
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐ soldering ☐ welding ☐ model glues ☐ paint ☐ spray paint,  
 wood finishing ☐ Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☐  
 Vacuuming ☒  
 Polishing (furniture, etc) ☒  
 Washing/waxing floors ☐  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/25/2011

1. Name: [REDACTED]

Address: 227 Boston Ave

Home Phone: [REDACTED] Work Phone: [REDACTED]

2. What is the best time to call to speak with you? even At: Work ☐ or Home ☒ even

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?

4. Total number of occupants/persons at this location? 3  
Number of children? 2 Ages? 15 & 12

5. How long have you lived at this location? 3 years

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☒ No ☐ none  
If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒, Brick ☐, Concrete ☒, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐  
Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
Public water supply ☒  
Private well ☐  
Bottled water ☐  
Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
Yes ☐ No ☒  
If yes, please describe what you use the well  
for: \_\_\_\_\_

13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐

14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☒ No ☐

↳ collects when rains  
SE corner of house

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 3  
How many are used for more than 2 hours/day? 0
17. Is the basement floor (check all that apply) concrete ☒, tile ☒, carpeted ☒, dirt ☐,  
other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☒  
Yes, rarely (less than 1 time/yr) ☐  
No ☐
20. Does the basement ever flood (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☒  
Yes, rarely (less than 1 time/yr) ☐  
No ☐
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒,  
Wall cracks ☒, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
(describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☒ Drain cleaners ☒ Pesticides ☒
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☒ If yes, how many persons 1 - only ~ 2x/yr  
 No ☐ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☒ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☒, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☐, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☒ No ☐
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 \_\_\_\_\_  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐  
 \_\_\_\_\_
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☒
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Insecticides	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Spray-on oven cleaners	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	<u>Often</u>
Hair sprays	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☒  
 Washing/waxing floors ☒  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/27/2011

1. Name: [REDACTED]

Address: 236 Boston Ave

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? anytime At: Work ☐ or Home ☐?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 2  
Number of children? 0 Ages? \_\_\_\_\_

5. How long have you lived at this location? ~20 yrs

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 2

Basement? Yes ☒ No ☐

Crawl Space? Yes ☒ No ☐

If Yes, under how much of the house's area? 15-25 %

8. Age of Home/Structure: built late 20s early 30s years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☒, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐



- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☒ *occasionally*  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description, please check appropriate boxes.**

If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 3  
 How many are used for more than 2 hours/day? 1 - main room
17. Is the basement floor (check all that apply) concrete ☒, tile ☒, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☒  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☒ *- tree not causes backup*  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☒, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☒ Paint thinner ☒  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☒  
 Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☒
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
Bathroom - tile in floor & shower (used adhesives)
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where?
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☐  
 Window air conditioning unit(s) ☒  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, Orkin - up until 2 yrs ago  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☐, Electric ☐, By furnace ☒, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒, Gas ☐, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☒, welding ☐, model glues ☒, paint ☒, spray paint, water enamel  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often



Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☒  
 Washing/waxing floors ☒  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-27-11

1. Name: [REDACTED]

Address: 239 Boston Ave.

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? morning At: Work ☐ or Home ☒

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) 9 to 10:30 am  
of this Home/Structure?

4. Total number of occupants/persons at this location? 4  
Number of children? 2 Ages? 21 & 4

5. How long have you lived at this location? 10 years

General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐

7. Home/Structure Description: number of floors 2  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☒  
If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☐, Other ☐

10. Foundation Construction (check all that apply): not sure  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 1  
 How many are used for more than 2 hours/day? maybe washing
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☒  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☒  
 (describe) \_\_\_\_\_  
*sewer clean-out check don't*



22. Are any of the following used or stored in the basement (check all that apply)  
Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
*spray bottles*  
If yes, please specify what was done, where in the home, and what month:  
\_\_\_\_\_  
\_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
Yes, use dry-cleaning regularly (at least weekly) ☐  
Yes, use dry-cleaning infrequently (monthly or less) ☐  
Yes, work at a dry cleaning service ☐  
No ☒
26. Does anyone in your home use solvents at work?  
Yes ☐ If yes, how many persons \_\_\_\_\_  
No ☒ If no, go to question 28
27. ~~If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐~~
28. Where is the washer/dryer located?  
Basement ☒  
Upstairs utility room ☐  
Kitchen ☐  
Garage ☐  
Use a Laundromat ☐  
Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
Heat conveyance system: Forced hot air ☒  
Forced hot water ☐  
Steam ☐  
Radiant floor heat ☐  
Wood stove ☐  
Coal furnace ☐  
Fireplace ☐  
Other \_\_\_\_\_
- just got new furnace*

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☐  
 Window air conditioning unit(s) ☒  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, termites  
 and approximate date of service ~ 5 years
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. ~~If yes to above, what do they smoke?~~  
~~Cigarettes ☐ Cigars ☐~~  
~~Pipe ☐ Other ☐~~
39. Do you regularly use air fresheners? Yes ☐ No ☐ Sometimes
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Spray-on oven cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Hair sprays	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☐

Dry sweeping ☐

Vacuuming ☒

Polishing (furniture, etc) ☒

Washing/waxing floors ☒

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/26/2011

1. Name: [REDACTED]

Address: 240 Boston Ave

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? am At: Work ☐ or Home ☐?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 2  
Number of children? 1 Ages? \_\_\_\_\_

5. How long have you lived at this location? 4  
*↳ no children live in house but here on a daily basis*

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 2

Basement? Yes ☒ No ☐

Crawl Space? Yes ☒ No ☐ *-attic*

If Yes, under how much of the house's area? 50 %

8. Age of Home/Structure: ~100 years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):

Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

*↳ stone/masonry*

10. Foundation Construction (check all that apply):

Concrete slab ☒

Fieldstone ☐

Concrete block ☐

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
 If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐, other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐, other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☒  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☒  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒ - crack  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
Kitchen & living room painted
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28 -not anymore
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☐  
 Window air conditioning unit(s) ☒  
 Other ☐ , please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒ , Ceiling fans ☒ , Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒ , Electric ☐ , By furnace ☐ , Other ☐  
 Water heater location: Basement ☒ , Upstairs utility room ☐ , Garage ☐ , Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒ Gas ☐ , Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☐ , Rare (only guests) ☐ , Moderate (residents light smokers) ☐ ,  
 Heavy (at least one heavy smoker in household) ☒
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☒  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☐ No ☒ *not regularly*
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐ , soldering ☐ , welding ☐ , model glues ☐ , paint ☐ , spray paint,  
 wood finishing ☐ , Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

**Never**

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☐

Washing/waxing floors ☒

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/25/111. Name: [REDACTED]Address: 302 Boston Ave  
Waterloo, Iowa 50703Home Phone: [REDACTED] Work Phone: \_\_\_\_\_2. What is the best time to call to speak with you? 8-11 At: Work ☐ or Home ☒3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?4. Total number of occupants/persons at this location? 2  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_5. How long have you lived at this location? 57

## General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐7. Home/Structure Description: number of floors 3Basement? Yes ☒ No ☐Crawl Space? Yes ☐ No ☐

If Yes, under how much of the house's area? \_\_\_\_\_%

8. Age of Home/Structure: ~1950 years, Not sure/Unknown ☐9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐

10. Foundation Construction (check all that apply):

Concrete slab ☒Fieldstone ☐Concrete block ☒



Elevated above ground/grade ☐

Other \_\_\_\_\_

11. What is the source of your drinking water (check all that apply)?

Public water supply ☒

Private well ☐

Bottled water ☐

Other, please specify \_\_\_\_\_

12. Do you have a private well for purposes other than drinking?

Yes ☐ No ☒

If yes, please describe what you use the well for: \_\_\_\_\_

13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐

14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☒ No ☐  
*spring/heavy storms on sidewalk*

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐? *partially finished*
16. If finished, how many rooms are in the basement? 2  
How many are used for more than 2 hours/day? 1
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐, other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☒, cement block ☐, stone ☐, wood ☐, brick ☐, other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☒ *depends on how bad it rains*  
No ☐
20. Does the basement ever flood (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☐  
No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐, Wall cracks ☒, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐ (describe) \_\_\_\_\_

*wall cracks covered by paneling*  
*floor drain by furnace*

22. Are any of the following used or stored in the basement (check all that apply)  
Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐ *oil tank once in a while dips (heating oil)*
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
If yes, please specify what was done, where in the home, and what month:
- 

24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
If yes, when and where? 

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25. Do you regularly use or work in a dry cleaning service (check only one box)?  
Yes, use dry-cleaning regularly (at least weekly) ☐  
Yes, use dry-cleaning infrequently (monthly or less) ☐  
Yes, work at a dry cleaning service ☐  
No ☒

26. Does anyone in your home use solvents at work?  
Yes ☐ If yes, how many persons 

---

  
No ☒ If no, go to question 28

27. If yes for question 26 above, are the work clothes washed at home? ~~Yes ☐ No ☐~~

28. Where is the washer/dryer located?  
Basement ☒  
Upstairs utility room ☐  
Kitchen ☐  
Garage ☐  
Use a Laundromat ☐  
Other, please specify ☐ 

---

29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐

30. What type(s) of home heating do you have (check all that apply)  
Fuel type: Gas ☐, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other Natural gas  
Heat conveyance system: Forced hot air ☒  
Forced hot water ☐  
Steam ☐  
Radiant floor heat ☐  
Wood stove ☐  
Coal furnace ☐  
Fireplace ☐  
Other 

---
- heating oil tank not in use*

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☐, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☒ No ☐ *Not very often*
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☐, Electric ☐, By furnace ☐, Other ☒ *natural gas*  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒ Gas ☐, Other ☐ \_\_\_\_\_
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐ Moderate (residents light smokers) ☐  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product	Frequency of Use
Spray-on deodorant	<input checked="" type="radio"/> Never <input type="radio"/> Hardly ever <input type="radio"/> Occasionally <input type="radio"/> Regularly <input type="radio"/> Often



*plug in Glade type*

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	<u>Often</u>
Insecticides	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Spray-on oven cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Nail polish remover	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒ *Once a week*  
 Dry sweeping ☒  
 Vacuuming ☒ *6 or 7 times a week*  
 Polishing (furniture, etc) ☒ *once a week*  
 Washing/waxing floors ☒ *once a week*  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 9/25/20111. Name: [REDACTED]Address: 326 Boston AveHome Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? anytime At: Work ☐ or Home ☒
3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?
4. Total number of occupants/persons at this location? 3  
Number of children? 1 Ages? 17
5. How long have you lived at this location? 1986 - 27 yrs

## General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_
7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☒ No ☐  
If Yes, under how much of the house's area? \_\_\_\_\_% unknown - think 100%
8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒ 6/1959 in concrete masonry?
9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☒, Cement block ☐, Other ☐ \_\_\_\_\_
10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☒

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☒  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☒ *comes up through window*  
 Yes, occasionally (1-2 times/yr) ☐ *& into floor drain*  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_



22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☒ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☒ If yes, please check the appropriate type(s)  
 Central air conditioning ☐  
 Window air conditioning unit(s) ☒  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product Frequency of Use

Spray-on deodorant      Never      Hardly ever      Occasionally      Regularly      Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☐  
 Polishing (furniture, etc) ☒  
 Washing/waxing floors ☒  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/24/20111. Name: [REDACTED]Address: 9221 E 4th StHome Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? MWF a.m. At: Work ☐ or Home ☒
3. Are you the Owner ☒ Renter ☐ Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?
4. Total number of occupants/persons at this location? 1  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_
5. How long have you lived at this location? 21 yrs  
been in family since 1927

## General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒ Duplex ☐ Condominium ☐ Townhouse ☐ Other ☐ \_\_\_\_\_
7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☒ No ☐ - Attic 90-100  
If Yes, under how much of the house's area? \_\_\_\_\_ %
8. Age of Home/Structure: 1927 years, Not sure/Unknown ☐
9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒ Brick ☐ Concrete ☐ Cement block ☐ Other ☐ Stucco
10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description, please check appropriate boxes.**  
 If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒ tile ☐ carpeted ☒ dirt ☐  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐ cement block ☒ stone ☐ wood ☐ brick ☐  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☒ *→ damp, runs dehumidifier all the time*  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒ *→ 1968 flood but that's it*
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒  
 Wall cracks ☐ Sump ☐ Floor drain ☒ Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☒ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ , please specify radiant
32. Do you use any of the following? Room fans ☒ , Ceiling fans ☒ , Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☒ No ☐
33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, termites  
 and approximate date of service ~1993 ; partial treatment 2 yrs ago
34. Water Heater Type: Gas ☒ , Electric ☐ , By furnace ☐ , Other ☐  
 Water heater location: Basement ☒ , Upstairs utility room ☐ , Garage ☐ , Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐ , Gas ☒ , Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☒ , Rare (only guests) ☐ , Moderate (residents light smokers) ☐ ,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐ only in bathroom
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐ , soldering ☐ , welding ☐ , model glues ☐ , paint ☐ , spray paint,  
 wood finishing ☒ , Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☐

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☐

Washing/waxing floors ☐

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [REDACTED]

Address: 2227 E. 4th ST.

Home Phone: [REDACTED] Work Phone: —

What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☐?

Are you the Owner ☒ Renter ☐, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?

4. Total number of occupants/persons at this location? 2  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_

5. How long have you lived at this location? ~1965

General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 2 with a tr  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☒  
If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: 1912 years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

*Is hard of  
hearing, difficult  
- sometimes chugging*



- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
 If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? 1  
 How many are used for more than 2 hours/day? NO
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐, other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐, other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐, Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☒ (describe) \_\_\_\_\_

*- dirt floor crawlspace in NW basement corner*

H-6

*Sampling points in basement from previous assessment*

- get rid*
22. Are any of the following used or stored in the basement (check all that apply)  
Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
If yes, please specify what was done, where in the home, and what month:  
\_\_\_\_\_  
\_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
Yes, use dry-cleaning regularly (at least weekly) ☐  
Yes, use dry-cleaning infrequently (monthly or less) ☐  
Yes, work at a dry cleaning service ☐  
No ☒
26. Does anyone in your home use solvents at work?  
Yes ☐ If yes, how many persons \_\_\_\_\_  
No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
Basement ☒  
Upstairs utility room ☐  
Kitchen ☐  
Garage ☐  
Use a Laundromat ☐  
Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
Heat conveyance system: Forced hot air ☒  
Forced hot water ☐  
Steam ☐  
Radiant floor heat ☐  
Wood stove ☐  
Coal furnace ☐  
Fireplace ☐  
Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐ *most rooms*  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☒, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? ~~Yes ☐~~ ~~No ☐~~
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐ *occasionally*
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often



Aerosol deodorizers	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Spray-on oven cleaners	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Nail polish remover	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Hair sprays	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☐ *rarely*  
 Washing/waxing floors ☒  
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

39

## OCCUPIED DWELLING QUESTIONNAIRE

### Indoor Air Assessment Survey

Date: 4/24/2011

1. Name: [REDACTED]

Address: 22-33 E 4th St

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☐?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 2  
Number of children? 0 Ages? \_\_\_\_\_

5. How long have you lived at this location? ~20 yrs  
~10 yrs - daughter lives here

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☒ No ☐ - attic  
If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☒, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

H - 5

rear bedroom → "gas" odor on clothes in closet  
doesn't notice it elsewhere in the house.

- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☒  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☒ *depends on amount of rain*  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☒ *stop*  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☒ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

<u>Product</u>	<u>Frequency of Use</u>				
Spray-on deodorant	Never	Hardly ever	Occasionally	Regularly	Often

Aerosol deodorizers	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Disinfectants	Never	<u>Hardly ever</u>	Occasionally	<u>Regularly</u>	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Nail polish remover	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☒

Washing/waxing floors ☐

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4/10

## OCCUPIED DWELLING QUESTIONNAIRE

### Indoor Air Assessment Survey

Date: 4/27/2011

1. Name: [REDACTED]

Address: 2237 E 4th St

Home Phone: \_\_\_\_\_ Work Phone: 858-741-1111 [REDACTED]

2. What is the best time to call to speak with you? anytime At: Work ☐ or Home ☐?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 6  
Number of children? 3 Ages? 14, 7, 11

5. How long have you lived at this location? 20 yrs

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐

7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☒ No ☐  
If Yes, under how much of the house's area? 50 %

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☒, Concrete ☐, Cement block ☐, Other ☐

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐  
Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
Public water supply ☒  
Private well ☐  
Bottled water ☐  
Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
Yes ☐ No ☒  
If yes, please describe what you use the well for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? *partially open → makes an*  
*all-sleeping* *ending room*  
How many are used for more than 2 hours/day? *all-sleeping*
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☐  
No ☒
20. Does the basement ever flood (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☐  
No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒,  
Wall cracks ☒, Sump ☐, Floor drain ☒, Other hole/opening in floor ☒  
(describe) *previous sample ports*



22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☒
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
painting bedroom
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☐  
 Window air conditioning unit(s) ☒  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, termites  
 and approximate date of service about 8 yrs ago
34. Water Heater Type: Gas ☐, Electric ☐, By furnace ☐, Other unknown  
☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐ \_\_\_\_\_
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☒
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant Never Hardly ever Occasionally Regularly Often

Aerosol deodorizers	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Disinfectants	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Spray-on oven cleaners	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Hair sprays	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☐

Polishing (furniture, etc) ☐

Washing/waxing floors ☐

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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## OCCUPIED DWELLING QUESTIONNAIRE

### Indoor Air Assessment Survey

Date: 4/29/2011

1. Name: [REDACTED]

Address: 2413 E 4th St

Home Phone: [REDACTED]

Work Phone: [REDACTED]

2. What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☐
3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?
4. Total number of occupants/persons at this location? 2  
Number of children? 0 Ages? \_\_\_\_\_
5. How long have you lived at this location? 1969

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_
7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☒ No ☐ - Attic  
If Yes, under how much of the house's area? 50 %
8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒
9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☒, Other ☐ \_\_\_\_\_
10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐



- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_

13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐

14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☒ No ☐

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

*↳ pools around  
garage when rains*

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 2  
 How many are used for more than 2 hours/day? 1 - most of the time
17. Is the basement floor (check all that apply) concrete ☒, tile ☒, carpeted ☒, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_? *↳ under carpet*
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒ *→ not any more*
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☒, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☒ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒ -- Not sure  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☐ No ☒
37. Smoking in Home:  
 None ☐, Rare (only guests) ☒, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	<u>Often</u>

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Spray-on oven cleaners	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☐

Vacuuming ☒

Polishing (furniture, etc) ☐

Washing/waxing floors ☒

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4-27-11

1. Name: [REDACTED]

Address: 2417 E. 4th ST.

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? morning At: Work ☐ or Home ☒?

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) I am to own  
of this Home/Structure?

4. Total number of occupants/persons at this location? 1  
Number of children? — Ages? \_\_\_\_\_

5. How long have you lived at this location? 10 years

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 2  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☒  
If Yes, under how much of the house's area? 100%

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☒ *not aware of*
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒ *not aware of one*

**Basement Description**, please check appropriate boxes.  
 If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 1  
 How many are used for more than 2 hours/day? No
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐ *Surface cracking*  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐ *none*
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
If yes, please specify what was done, where in the home, and what month:  
\_\_\_\_\_  
\_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
Yes, use dry-cleaning regularly (at least weekly) ☐  
Yes, use dry-cleaning infrequently (monthly or less) ☐  
Yes, work at a dry cleaning service ☐  
No ☒
26. Does anyone in your home use solvents at work?  
Yes ☐ If yes, how many persons \_\_\_\_\_  
No ☒ If no, go to question 28
- ~~27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐~~
28. Where is the washer/dryer located?  
Basement ☒ *washer in basement*  
Upstairs utility room ☐  
Kitchen ☐  
Garage ☐  
Use a Laundromat ☐  
Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? ~~Yes ☐ No ☐~~  
*no dryer*
30. What type(s) of home heating do you have (check all that apply)  
Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
Heat conveyance system: Forced hot air ☐  
Forced hot water ☐  
Steam ☐  
Radiant floor heat ☐ *not sure*  
Wood stove ☐  
Coal furnace ☐  
Fireplace ☐  
Other \_\_\_\_\_

*thinks it is  
natural gas  
~ 1 year old*

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify upstairs, not used
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒ Electric ☐, By furnace ☐, Other ☐  
not sure  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒ fan to exhaust  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐  
Sometimes
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often



Aerosol deodorizers	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Insecticides	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Nail polish remover	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☒

Washing/waxing floors ☒

Other ☐ \_\_\_\_\_

*regular routine a couple  
times a week*

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [REDACTED]

Address: 2421 E. 4th ST.

Home Phone: [REDACTED] Work Phone: —

2. What is the best time to call to speak with you? anytime At: Work ☐ or Home ☐?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 2  
Number of children? \_\_\_\_\_ Ages? you and grandson

5. How long have you lived at this location? 1991

## General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☒  
If Yes, under how much of the house's area? \_\_\_\_\_%

8. Age of Home/Structure: 1919 years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☒, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☐

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

*little post by gutters  
occasionally*

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☒ *heavy rains*  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☒, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☒
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
*stucco not across type* *loggia*  
On main floor and leading to the basement
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☐, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☒ No ☐  
*Spring and Fall*
33. Has your home had termite or other pesticide treatment? Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, *spider, termites, wasps* and approximate date of service *not a service*
34. Water Heater Type: Gas ☒ Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. ~~If yes to above, what do they smoke?~~  
~~Cigarettes ☐ Cigars ☐~~  
~~Pipe ☐ Other ☐~~
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	Hardly ever	Occasionally	Regularly	Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	<del>Never</del>	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☐  
 Polishing (furniture, etc) ☐  
 Washing/waxing floors ☒ occasionally  
 Other ☐

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 11-25-11

1. Name: [REDACTED]

Address: 2427 E. 4th ST., Waterloo, IA

Home Phone: [REDACTED] Work Phone: [REDACTED]

2. What is the best time to call to speak with you? 7-3 At: Work ☒ or Home ☐

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) & Husband  
of this Home/Structure?

4. Total number of occupants/persons at this location? 6  
Number of children? 4 Ages? 10 - 21

5. How long have you lived at this location? 23

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐

7. Home/Structure Description: number of floors 1

Basement? Yes ☒ No ☐

Crawl Space? Yes ☐ No ☐

If Yes, under how much of the house's area?      %

8. Age of Home/Structure: ~ mid 1920's years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒ Brick ☐, Concrete ☐, Cement block ☐, Other ☐

owner not sure

10. Foundation Construction (check all that apply):

Concrete slab ☐

Fieldstone ☐

Concrete block ☒

- Elevated above ground/grade ☐  
Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
Public water supply ☒  
Private well ☐  
Bottled water ☐  
Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
Yes ☐ No ☒  
If yes, please describe what you use the well  
for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒ tile ☐ carpeted ☐ dirt ☐  
other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐ cement block ☒ stone ☐ wood ☐ brick ☐  
other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☒  
No ☐
20. Does the basement ever flood (check one only)?  
Yes, frequently (3 or more times/yr) ☐  
Yes, occasionally (1-2 times/yr) ☐  
Yes, rarely (less than 1 time/yr) ☐  
No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐  
Wall cracks ☐ Sump ☐ Floor drain ☒ Other hole/opening in floor ☐  
(describe) \_\_\_\_\_

3 floor drains



22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☐  
 Upstairs utility room ☒  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒ Electric ☐, By furnace ☐, Other ☐  
 \_\_\_\_\_  
 Water heater location: Basement ☒ Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒, Gas ☐, Other ☐  
 \_\_\_\_\_
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☒ Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☐ No ☒
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant

Never

Hardly ever

Occasionally

Regularly

Often

Aerosol deodorizers	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Spray-on oven cleaners	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Hair sprays	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☐ 1 / month

Washing/waxing floors ☐

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4-25-11

1. Name: [REDACTED]

Address: 2600 E. 4<sup>th</sup> ST., W'100

Home Phone: [REDACTED] Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? evening At: Work ☐ or Home ☒

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 2  
Number of children? 0 Ages? \_\_\_\_\_

5. How long have you lived at this location? 2

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒ Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☐  
If Yes, under how much of the house's area? 100%

8. Age of Home/Structure: 1939 years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒ Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☐  
Fieldstone ☐  
Concrete block ☒



- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
 If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☐ *partial (w/1/2 = finished)*
16. If finished, how many rooms are in the basement? 2  
 How many are used for more than 2 hours/day? 2
17. Is the basement floor (check all that apply) concrete ☒ tile ☐ carpeted ☐ dirt ☐  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐ cement block ☒ stone ☐ wood ☐ brick ☐  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐  
 Wall cracks ☐ Sump ☐ Floor drain ☒ Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
Basement rock rm, ~ Dec '10, flr tiles 12x12, wall, ceiling
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☒  
 Yes, work at a dry cleaning service ☐  
 No ☐
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☐ rarely
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒, Gas ☐, Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product	Frequency of Use
Spray-on deodorant	<input checked="" type="radio"/> Never <input type="radio"/> Hardly ever <input type="radio"/> Occasionally <input type="radio"/> Regularly <input type="radio"/> Often

Aerosol deodorizers	<input checked="" type="radio"/> Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	<input checked="" type="radio"/> Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	<input checked="" type="radio"/> Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	<input checked="" type="radio"/> Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	<input checked="" type="radio"/> Occasionally	Regularly	Often
Nail polish remover	<input checked="" type="radio"/> Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	<input checked="" type="radio"/> Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☐ 1/month

Washing/waxing floors ☐ n/a

Other ☐

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



60

## OCCUPIED DWELLING QUESTIONNAIRE

### Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [REDACTED]

Address: 2614 E. 4<sup>th</sup> ST., W'loo

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☐?

3. Are you the Owner ☒ Renter ☐ Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?

4. Total number of occupants/persons at this location? 1  
Number of children? \_\_\_\_\_ Ages? \_\_\_\_\_

5. How long have you lived at this location? 2

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒ Duplex ☐  
Condominium ☐ Townhouse ☐ Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1

Basement? Yes ☒ No ☐

Crawl Space? Yes ☐ No ☐

If Yes, under how much of the house's area? 100%

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒ Brick ☐ Concrete ☐ Cement block ☐ Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):

Concrete slab ☐

Fieldstone ☐

Concrete block ☒

- Elevated above ground/grade ☐  
 Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? \_\_\_\_\_  
 How many are used for more than 2 hours/day? \_\_\_\_\_
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐ please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☒  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☐, Gas ☒, Other ☐
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☒ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	Hardly ever	Occasionally	Regularly	Often



Aerosol deodorizers	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Insecticides	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Spray-on oven cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Nail polish remover	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Hair sprays	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☐

Washing/waxing floors ☒

Other ☐

1/month

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/27/11

1. Name: [REDACTED]

Address: 2620 East 4<sup>th</sup> Street

Home Phone: [REDACTED] Work Phone: [REDACTED]

2. What is the best time to call to speak with you? 3:30 At: Work ☐ or Home ☒

Mondays &amp; Pt Tues-Fri

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?4. Total number of occupants/persons at this location? 6  
Number of children? 0 Ages? \_\_\_\_\_5. How long have you lived at this location? grandchild 3 days a week  
1 1/2 years

## General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 1

Basement? Yes ☒ No ☐Crawl Space? Yes ☐ No ☒

If Yes, under how much of the house's area? 100%

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒ Kimberly may know9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):

Concrete slab ☒Fieldstone ☐Concrete block ☐

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

*allay way when it rains, side door*

**Basement Description**, please check appropriate boxes.

If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? *1 room, split to 2 bedrooms*  
 How many are used for more than 2 hours/day? *everyday*
17. Is the basement floor (check all that apply) concrete ☒ tile ☐ carpeted ☐ dirt ☐  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐ cement block ☒ stone ☐ wood ☐ brick ☐  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☒ *when it rains hard*  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐ *saw back up*  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☒ *small long cracks*  
 Wall cracks ☒ Sump ☐ Floor drain ☒ Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_  
*send a couple of them*

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_ *degreaser*  
 No ☐ If no, go to question 28
- ~~27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐~~
28. Where is the ~~washer~~/dryer located?  
 Basement ☒ *no washer*  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☐ No ☒
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒ Oil ☐ Electric ☐ Wood ☐ Coal ☐ Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_



31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☒ No ☐ *spring and fall*
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 Water heater location: Basement ☒ Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) *Attic*
35. What type of cooking appliance do you have? Electric ☐, Gas ☒ Other ☐
36. Is there a stove exhaust hood present? Yes ☐ No ☒  
 Does it vent to the outdoors? Yes ☐ No ☐
37. Smoking in Home:  
 None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☒
38. If yes to above, what do they smoke?  
 Cigarettes ☒ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐ *incense*
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	Hardly ever	Occasionally	Regularly	Often

Aerosol deodorizers	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Disinfectants	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Nail polish remover	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

42. Please check weekly household cleaning practices:

- Dusting ☒   
 Dry sweeping ☒   
 Vacuuming ☐   
 Polishing (furniture, etc) ☐   
 Washing/waxing floors ☐   
 Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/28/20111. Name: [REDACTED]Address: 2435 E 4th StHome Phone: [REDACTED] Work Phone: \_\_\_\_\_2. What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☐?3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify) \_\_\_\_\_  
of this Home/Structure?4. Total number of occupants/persons at this location? 2  
Number of children? 0 Ages? \_\_\_\_\_5. How long have you lived at this location? 1968 - 43 yrs

## General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐,  
Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_7. Home/Structure Description: number of floors 2Basement? Yes ☒ No ☐Crawl Space? Yes ☒ No ☐ → AtticIf Yes, under how much of the house's area? 100 %8. Age of Home/Structure: Built 1924 years, Not sure/Unknown ☐9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☒, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):

Concrete slab ☒Fieldstone ☐Concrete block ☐

- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☒  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
 If you do not have a basement go to question 23.

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 3  
 How many are used for more than 2 hours/day? 1
17. Is the basement floor (check all that apply) concrete ☒, tile ☒, carpeted ☒, dirt ☐, other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐, other ☐ wood panel over ty?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☒ *depends on amount of rain*  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☐
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐, Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐ (describe) \_\_\_\_\_



22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☒ ~~was~~ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☐ Drain cleaners ☐ Pesticides ☐
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☒ - 1-2x/yr  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☒  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other \_\_\_\_\_

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒
33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐  
 If yes, please specify type of pest controlled, Black ants - deck & outside house  
 and approximate date of service Summer 2016
34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐  
 \_\_\_\_\_  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒, Gas ☐, Other ☐  
 \_\_\_\_\_
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☐ No ☒
37. Smoking in Home:  
 None ☒, Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
 Never = never used, Hardly ever = less than once/month, Occasionally = about  
 once/month, Regularly = about once/week, and Often = more than once/week.

Product \_\_\_\_\_ Frequency of Use \_\_\_\_\_

Spray-on deodorant      Never      Hardly ever      Occasionally      Regularly      Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often ~ 2x/mo
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:

- Dusting ☒  
 Dry sweeping ☒  
 Vacuuming ☒  
 Polishing (furniture, etc) ☐ ~ 2x/mo  
 Washing/waxing floors ☒ as needed  
 Other ☐

43. Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# OCCUPIED DWELLING QUESTIONNAIRE

## Indoor Air Assessment Survey

Date: 4/25/2011

1. Name: [REDACTED]

Address: 2044 E 4th St

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_

2. What is the best time to call to speak with you? \_\_\_\_\_ At: Work ☐ or Home ☐?

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) \_\_\_\_\_ of this Home/Structure?

4. Total number of occupants/persons at this location? 4  
Number of children? 3 Ages? 17, 10, 10

5. How long have you lived at this location? ~1 yr

### General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐ \_\_\_\_\_

7. Home/Structure Description: number of floors 2 + loft  
Basement? Yes ☒ No ☐  
Crawl Space? Yes ☐ No ☒  
If Yes, under how much of the house's area? \_\_\_\_\_%

8. Age of Home/Structure: \_\_\_\_\_ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):  
Wood ☐, Brick ☐, Concrete ☐, Cement block ☐, Other ☐ \_\_\_\_\_

10. Foundation Construction (check all that apply):  
Concrete slab ☒  
Fieldstone ☐  
Concrete block ☐

yes - unknown



- Elevated above ground/grade ☐
- Other \_\_\_\_\_
11. What is the source of your drinking water (check all that apply)?  
 Public water supply ☒  
 Private well ☐  
 Bottled water ☐  
 Other, please specify \_\_\_\_\_
12. Do you have a private well for purposes other than drinking?  
 Yes ☐ No ☒  
 If yes, please describe what you use the well  
 for: \_\_\_\_\_
13. Do you have a septic system? Yes ☐ No ☐ Not used ☐ Unknown ☒
14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

**Basement Description**, please check appropriate boxes.  
If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement? 2  
 How many are used for more than 2 hours/day? 1
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☒, dirt ☐,  
 other ☐ (describe) \_\_\_\_\_?
18. Are the basement walls poured concrete ☐, cement block ☐, stone ☐, wood ☐, brick ☒,  
 other ☐ \_\_\_\_\_?
19. Does the basement have a moisture problem (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
20. Does the basement ever flood (check one only)?  
 Yes, frequently (3 or more times/yr) ☐  
 Yes, occasionally (1-2 times/yr) ☐  
 Yes, rarely (less than 1 time/yr) ☐  
 No ☒
21. Does the basement have any of the following? (check all that apply) Floor cracks ☐,  
 Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐  
 (describe) \_\_\_\_\_

22. Are any of the following used or stored in the basement (check all that apply)  
 Paint ☐ Paint stripper/remover ☐ Paint thinner ☐  
 Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐  
 Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☒
23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☐  
 If yes, please specify what was done, where in the home, and what month:  
 \_\_\_\_\_  
 \_\_\_\_\_
24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒  
 If yes, when and where? \_\_\_\_\_
25. Do you regularly use or work in a dry cleaning service (check only one box)?  
 Yes, use dry-cleaning regularly (at least weekly) ☐  
 Yes, use dry-cleaning infrequently (monthly or less) ☐  
 Yes, work at a dry cleaning service ☐  
 No ☒
26. Does anyone in your home use solvents at work?  
 Yes ☐ If yes, how many persons \_\_\_\_\_  
 No ☒ If no, go to question 28
27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐
28. Where is the washer/dryer located?  
 Basement ☒  
 Upstairs utility room ☐  
 Kitchen ☐  
 Garage ☐  
 Use a Laundromat ☐  
 Other, please specify ☐ \_\_\_\_\_
29. If you have a dryer, is it vented to the outdoors? Yes ☐ No ☐ *unknown*
30. What type(s) of home heating do you have (check all that apply)  
 Fuel type: Gas ☐, Oil ☐, Electric ☒, Wood ☐, Coal ☐, Other \_\_\_\_\_  
 Heat conveyance system: Forced hot air ☐  
 Forced hot water ☐  
 Steam ☐  
 Radiant floor heat ☐  
 Wood stove ☐  
 Coal furnace ☐  
 Fireplace ☐  
 Other ☐ *unknown*

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)  
 Central air conditioning ☒  
 Window air conditioning unit(s) ☐  
 Other ☐, please specify \_\_\_\_\_
32. Do you use any of the following? Room fans ☐, Ceiling fans ☒, Attic fan ☐  
 Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☐ unknown
33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐  
 If yes, please specify type of pest controlled, \_\_\_\_\_  
 and approximate date of service \_\_\_\_\_
34. Water Heater Type: Gas ☐, Electric ☐, By furnace ☐, Other ☐ unknown  
 Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) \_\_\_\_\_
35. What type of cooking appliance do you have? Electric ☒, Gas ☐, Other ☐ \_\_\_\_\_
36. Is there a stove exhaust hood present? Yes ☒ No ☐  
 Does it vent to the outdoors? Yes ☐ No ☐ unknown
37. Smoking in Home:  
 None ☒, Rare (only guests) ☐, Moderate (residents light smokers) ☐,  
 Heavy (at least one heavy smoker in household) ☐
38. If yes to above, what do they smoke?  
 Cigarettes ☐ Cigars ☐  
 Pipe ☐ Other ☐
39. Do you regularly use air fresheners? Yes ☒ No ☐ alot
40. Does anyone in the home have indoor home hobbies of crafts involving: None ☐  
 Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint,  
 wood finishing ☐, Other ☐ Please specify what type of hobby: \_\_\_\_\_
41. General family/home use of consumer products (please circle appropriate): Assume that  
**Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about  
 once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	Hardly ever	Occasionally	Regularly	Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Insecticides	Never	<u>Hardly ever</u>	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	<u>Regularly</u>	Often
Spray-on oven cleaners	<u>Never</u>	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often
Hair sprays	Never	Hardly ever	<u>Occasionally</u>	Regularly	Often

42. Please check weekly household cleaning practices:

Dusting ☒

Dry sweeping ☒

Vacuuming ☒

Polishing (furniture, etc) ☒

Washing waxing floors ☒ *not waxing*

Other ☐ \_\_\_\_\_

43. Other comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Appendix E**  
**Completed Field Forms**

# Terracon

Street Address: 322 E Arlington Ave  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/26/2011

Time of Arrival: 1030 Time of Departure: 1120

Names of Terracon Representatives: John Brumbyer  
Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28 & 4/29

Time of Follow-Up Visit: 9:00 am

Items Completed as Noted:

Jim Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 322 E Ardmore

Name of Resident: [REDACTED]

Date and Time of Visit: 4/24/2011 10:30 am

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

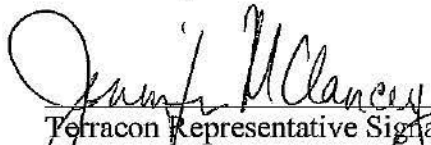
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

[REDACTED]  
Resident Signature

(4)

# Terracon

Street Address: 322E Ardington St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 910

Time of Departure: 935

Names of Terracon Representatives: John Bonneyer  
for clancy

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☒ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☒ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/2011

Time of Follow-Up Visit: 900

Items Completed as Noted:

Jennifer M. Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

④

# Terracon

Street Address: 322 E Arlington St

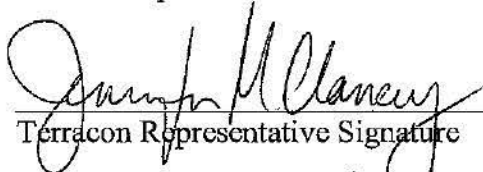
Name of Resident: [REDACTED]

Date and Time of Visit: 4/28/2011

## Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:  
Date: 4/29/2011  
Time: 900

Items Completed as Noted:

  
Terracon Representative Signature

[REDACTED]  
Resident Signature

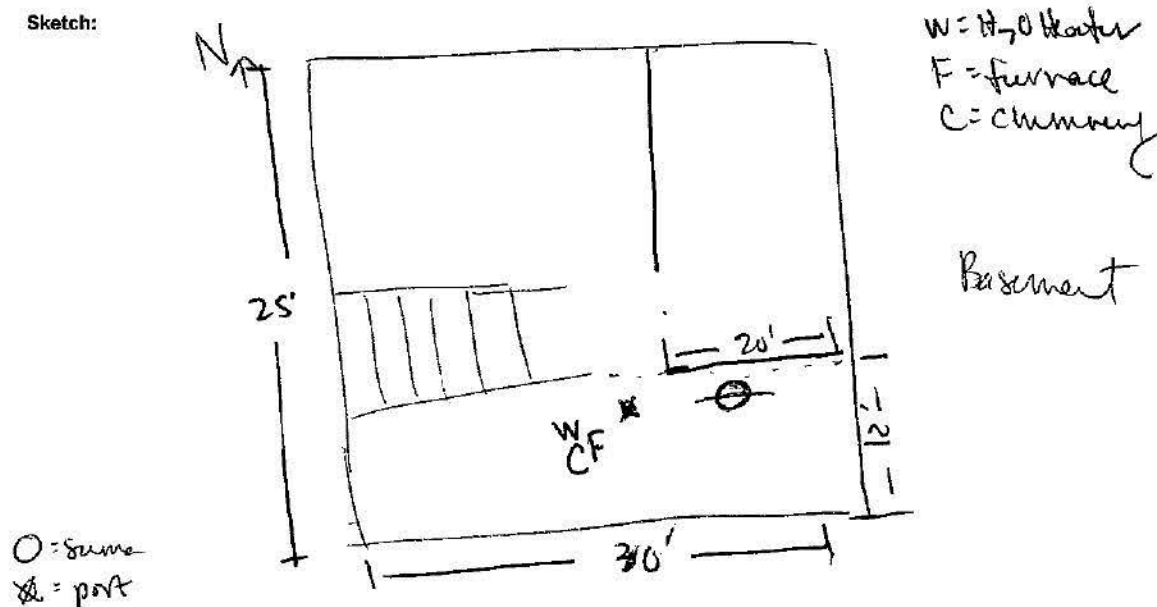


**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	4	Address:	322 E Arlington
Sample ID:	1A-4-B	Location:	Basement utility rm N shelves
Date:	4/28/11	Time:	9:15
Sampler(s):	jfb/jme	Summa Canister ID:	04391 / 12423
Flow Controller ID:	K423	Flow Controller Rate Setting (cc/min):	24 hr
Start Time:	9:15 4/28/11	Finish Time:	4/29/11 14:50
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):	—	PID used:	—
Summa Canister went to Ambient?	Yes <input checked="" type="radio"/> No	Method:	Grab
Comments:			

Sketch:



# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020

PROJECT LOCATION: 322 E Arlington St

DATE INSTALLED: 4/28/2011

TIME INSTALLED: 9:15

ADDRESS INSTALLED: Same

SAMPLE ID: 1A-A-B

SAMPLE LOCATION: Basement, utility room N-shelves

DEVICE #: 04341 CONTROLLER#: K423

LAB ID #: \_\_\_\_\_

RETRIEVAL DATE: 4/29/2011

PLANNED RETRIEVAL TIME: \_\_\_\_\_

ACTUAL RETRIEVAL TIME: 7:45

TERRACON REPRESENTATIVE: jme

COMMENTS:

# **Terracon**

Consulting Engineers & Scientists

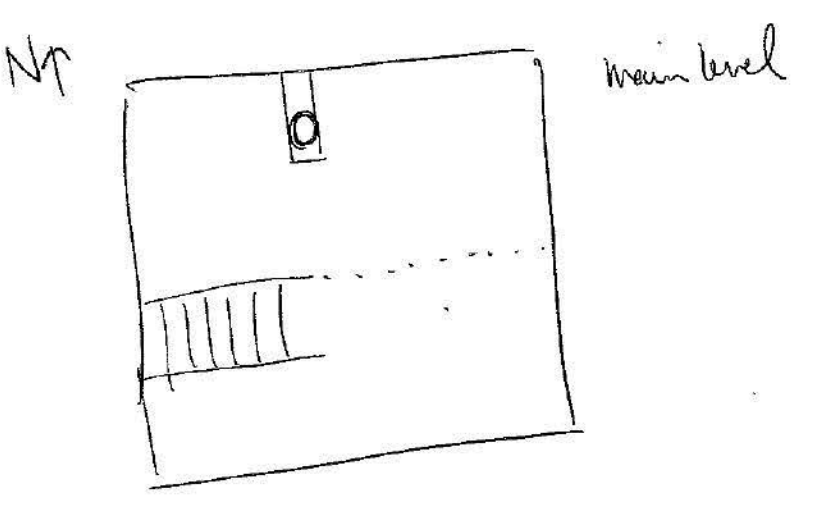
FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue

Bettendorf, Iowa 52722

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	4	Address:	322 E. Arlington
Sample ID:	1A-4-1	Location:	Bar b/n kitchen & dining room
Date:	4/28/11	Time:	9/8
Sampler(s):	161 fine	Summa Canister ID:	<del>K234</del> 12340
Flow Controller ID:	<del>K234</del> K234	Flow Controller Rate Setting (cc/min):	74/w
Start Time:	9/8 4/28/11	Finish Time:	14:52 4/29/11
Pre-Sampling Vacuum (in Hg):	-30	Post-Sampling Vacuum (in Hg):	-3 <del>#</del>
Organic Vapor Reading (ppm):	—	PID used:	—
Summa Canister went to Ambient?	Yes / <u>No</u>	Method:	Grab
Comments:			
<p>Sketch:</p> <div style="text-align: center;">  </div>			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020

PROJECT LOCATION: 322 E Arlington St

DATE INSTALLED: 4/28/2011

TIME INSTALLED: 918

ADDRESS INSTALLED: Same

SAMPLE ID: 1A-4-1

SAMPLE LOCATION: Bar bin kitchen & dining room

DEVICE #: 12340 CONTROLLER#: V234

LAB ID #: \_\_\_\_\_

RETRIEVAL DATE: 4/28/2011

PLANNED RETRIEVAL TIME: \_\_\_\_\_

ACTUAL RETRIEVAL TIME: 1452

TERRACON REPRESENTATIVE: jme

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	4	Address:	322 E. Arlington
Sample ID:	AA-4	Location:	Backyard? - W side of clothesline hanging
Date:	4/28/11	Time:	124
Sampler(s):	JB/pmc	Summa Canister ID:	12264
Flow Controller ID:	K188	Flow Controller Rate Setting (cc/min):	24/hr
Start Time:	9:29 4/28/11	Finish Time:	4/29/11 14:59
Pre-Sampling Vacuum (in Hg):	-30	Post-Sampling Vacuum (in Hg):	-1.5
Organic Vapor Reading (ppm):	—	PID used:	—
Summa Canister went to Ambient?	Yes <input checked="" type="radio"/> No	Method:	TU-15 Grab
Comments:	key # 15019		
<p>Sketch:</p> <div style="text-align: center;"> <p style="margin-top: 10px;">O = Summa</p> </div>			



# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020

PROJECT LOCATION: 322 E Arlington St

DATE INSTALLED: 4/28/2011

TIME INSTALLED: 9:29

ADDRESS INSTALLED: Same

SAMPLE ID: AA-4

SAMPLE LOCATION: Richardson - Langley

DEVICE #: 12264 CONTROLLER#: K188

LAB ID #:

RETRIEVAL DATE: 4/29/2011

PLANNED RETRIEVAL TIME: 9:29

ACTUAL RETRIEVAL TIME: 1459

TERRACON REPRESENTATIVE: Jme

COMMENTS:

# **Terracon**

Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

# Terracon

Street Address: 322 E. Avondale  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 900

Time of Departure: 1500

Names of Terracon Representatives: Jim Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal *x2*

☒ Outdoor Air Sampling *pickup*

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jim Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	4	Address:	322 E Arlington
Sample ID:	SS-4	Location:	Waterloo
Date:	4/29/2011	Time:	900
Sampler(s):	jmc & jme	Summa Canister ID:	1410
Flow Controller ID:	— 19	Flow Controller Rate Setting (cc/min):	
Start Time:	909	Finish Time:	944
Pre-Sampling Vacuum (in Hg):	-28	Post-Sampling Vacuum (in Hg):	-1.5
Organic Vapor Reading (ppm):	ambient: 0.1 ppm SS: 0.9 ppm	PID used:	MiniPac 3000
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	TD15
Grab			
Comments:			
Sketch:			

# Terracon

Street Address: 401 E. Arlington ST  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 1:30

Time of Departure: 1750

Names of Terracon Representatives:

Justin Enwall

Mark Anderson

☒

Introduce Terracon Representatives and Show Terracon Identification

☒

Verify identity of resident; confirm authority to allow entry

☐

Explain purpose of visit (check as appropriate):

☒

Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒

Completion of Questionnaire

☐ Indoor Air Sampling Canister  
Installation

☐

Indoor Air Sampling Canister  
Removal

☐ Outdoor Air Sampling

☐

Other [Explain: \_\_\_\_\_]

☒

Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/26/11

Time of Follow-Up Visit: 5:30 PM

Items Completed as Noted:

[Signature]

Terracon Representative Signature

Resident Signature

# Terracon

Street Address: 401 E. Arlington ST

Name of Resident: [REDACTED]

Date and Time of Visit: 4-26-11 @ 1:30

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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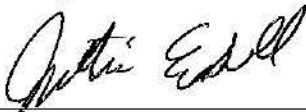
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- ☒ Install sampling port in accordance with work plan procedures.

- ☒ Clean up any debris.

- ☐ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:



Terracon Representative Signature



Resident Signature



# Terracon

Street Address: 401 E Arlington St.

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1735

Time of Departure: 1835

Names of Terracon Representatives: Rob Bergman

Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Justin Enwall  
Terracon Representative Signature

[REDACTED]  
Resident Signature

6

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	6	Address:	401 E Arlington St.
Sample ID:	SS-6	Location:	Waterloo, IA
Date:	4/28/11	Time:	1735
Sampler(s):	RPB/JME	Summa Canister ID:	21639
Flow Controller ID:	168	Flow Controller Rate Setting (cc/min):	200 cc/min
Start Time:	1745	Finish Time:	<del>1830</del> 1828
Pre-Sampling Vacuum (in Hg):	-28	Post-Sampling Vacuum (in Hg):	-1
Organic Vapor Reading (ppm):	<1 (0.0 ppm)	PID used:	WBL MiniRae #2 106 EU lamp
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	pumped 200 cc from SSms with syringe and approximately 10 cc from flow controller 0.0 ppm at ambient basement		
Sketch:			

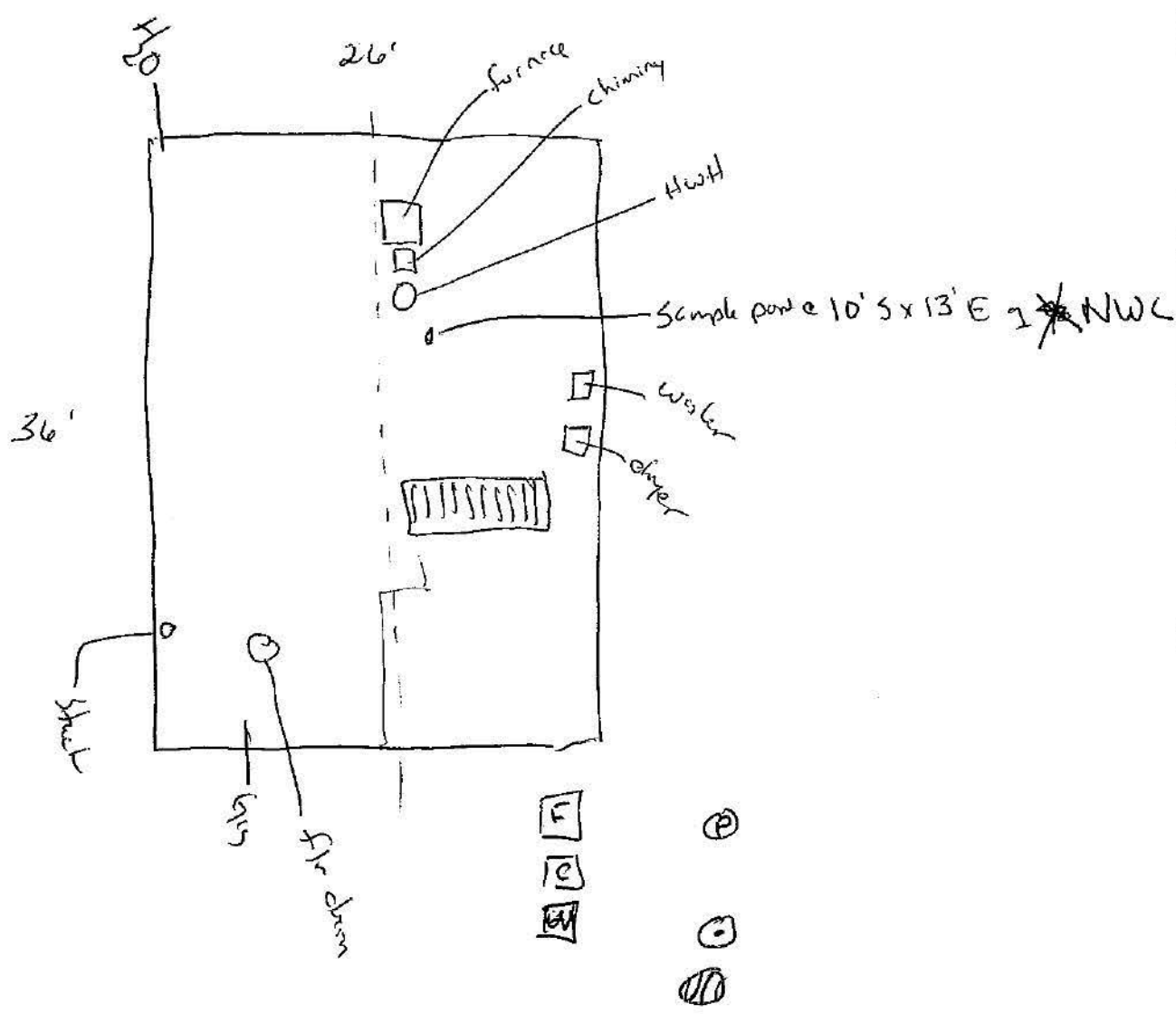
PROJECT: Chambelain Manufacturing Corporation Page 1 of 1

JOB NO. 070 07107020 Date 4-26-11 / 1:30 Comp. By JE/MA CHECKED BY: \_\_\_\_\_

401 E. Arlington St

N →

6



Some standing H<sub>2</sub>O in base ~ 20%

# Terracon

Street Address:

Name of Resident:

211 Boston

## Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 13:30

Time of Departure: \_\_\_\_\_

Names of Terracon Representatives: Justin Enwall  
Rob Bergman

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

\_\_\_\_\_ Sub-Slap Vapor Sampling

☒ Completion of Questionnaire

\_\_\_\_\_ Indoor Air Sampling Canister  
Installation

\_\_\_\_\_ Indoor Air Sampling Canister  
Removal

\_\_\_\_\_ Outdoor Air Sampling

\_\_\_\_\_ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11

Time of Follow-Up Visit: 1330

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

# Terracon

Street Address: 211 Boston

Name of Resident: [REDACTED]

Date and Time of Visit: 4/28/11 1530

## Sampling Port Installation Checklist

☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

☒ Install sampling port in accordance with work plan procedures.

☒ Clean up any debris.

☐ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
\_\_\_\_\_  
Terracon Representative Signature

  
\_\_\_\_\_  
Resident Signature



Street Address: 211 Boston Ave  
 Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1335 Time of Departure: 1440

Names of Terracon Representatives: Jim Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Justin Enwall  
 Terracon Representative Signature

[REDACTED]  
 Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	10	Address:	211 Boston Ave
Sample ID:	SS-10	Location:	Waterloo
Date:	5/2/2011	Time:	1335
Sampler(s):	jmc/jme	Summa Canister ID:	1010B
Flow Controller ID:	184	Flow Controller Rate Setting (cc/min):	
Start Time:	1342	Finish Time:	1424
Pre-Sampling Vacuum (in Hg):	-29.5	Post-Sampling Vacuum (in Hg):	-1.5
Organic Vapor Reading (ppm):	ambient = 00 SS: 0.1	PID used:	Muni RAE 3000
Summa Canister went to Ambient?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Method:	TD-15 Grab

Comments:	
-----------	--

Sketch:	<p>Block wall</p> <p>Shelves cut out</p> <p>into any of this area</p> <p>F</p> <p>count top</p> <p>27'</p> <p>11'</p> <p>Block wall - don't know what's on other side</p> <p>Qp = port ⊗ = door W = water heater C = chimney F = furnace</p>
---------	--

Street Address: 216 Boston

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/26/2011

Time of Arrival: 5:30 Time of Departure: 6:05

Names of Terracon Representatives: John Brumeyer

Jer Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28

Time of Follow-Up Visit: 4:30

Items Completed as Noted:

Jer Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 214 Boston  
Name of Resident: [REDACTED]  
Date and Time of Visit: 14/26/2011/530

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

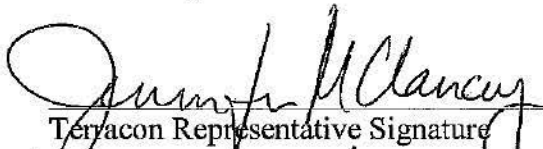

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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature  
  
Resident Signature

# Terracon

Street Address: 216 Boston Ave

Name of Resident: [REDACTED]

13

## Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 4:30

Time of Departure: 5:20

Names of Terracon Representatives: John Brumeyer

Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

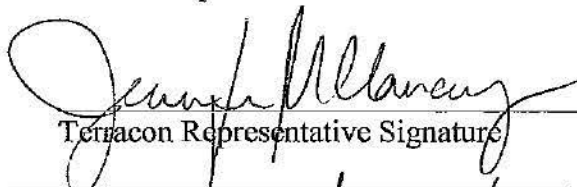
☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature



**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	13	Address:	216 Boston Ave
Sample ID:	SS-13	Location:	Waterloo
Date:	4/28/2011	Time:	430
Sampler(s):	Jfb/jme	Summa Canister ID:	62342N
Flow Controller ID:		Flow Controller Rate Setting (cc/min):	
Start Time:	1637	Finish Time:	1715
Pre-Sampling Vacuum (in Hg):	-28.5	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):		PID used: mini RAE 300D	ambient: 0.0 ppm subslab: 0.5 ppm
Summa Canister went to Ambient?	Yes / No	Method: TD-15	Grab
Comments:			

**Sketch:**

# Terracon

Street Address: 223 Boston Ave.

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27/11

Time of Arrival: 830

Time of Departure: 940

Names of Terracon Representatives: Justin Ewell

Mark Anderson

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11

Time of Follow-Up Visit: 11:00

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 223 Boston Ave.

Name of Resident: [REDACTED]

Date and Time of Visit: 4-27-11 @ 8:30

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

only small strip @ ~ 8'5" x 3'-6" E 2 NWC was painted concrete flr  
→ other appears to be 12 x 12" flr tiles  
limited access to entire basement

- ☒ Install sampling port in accordance with work plan procedures.
- ☐ Clean up any debris.
- ☐ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

15  
**Terracon**

Street Address: 223 Boston Ave

Name of Resident: [REDACTED]

**Arrival Checklist**

Date of Visit: 5/2/2011

Time of Arrival: 1100

Time of Departure: 1155

Names of Terracon Representatives: Jim Clancy  
Justin M. Wall

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jim Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

*would like results letter*

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

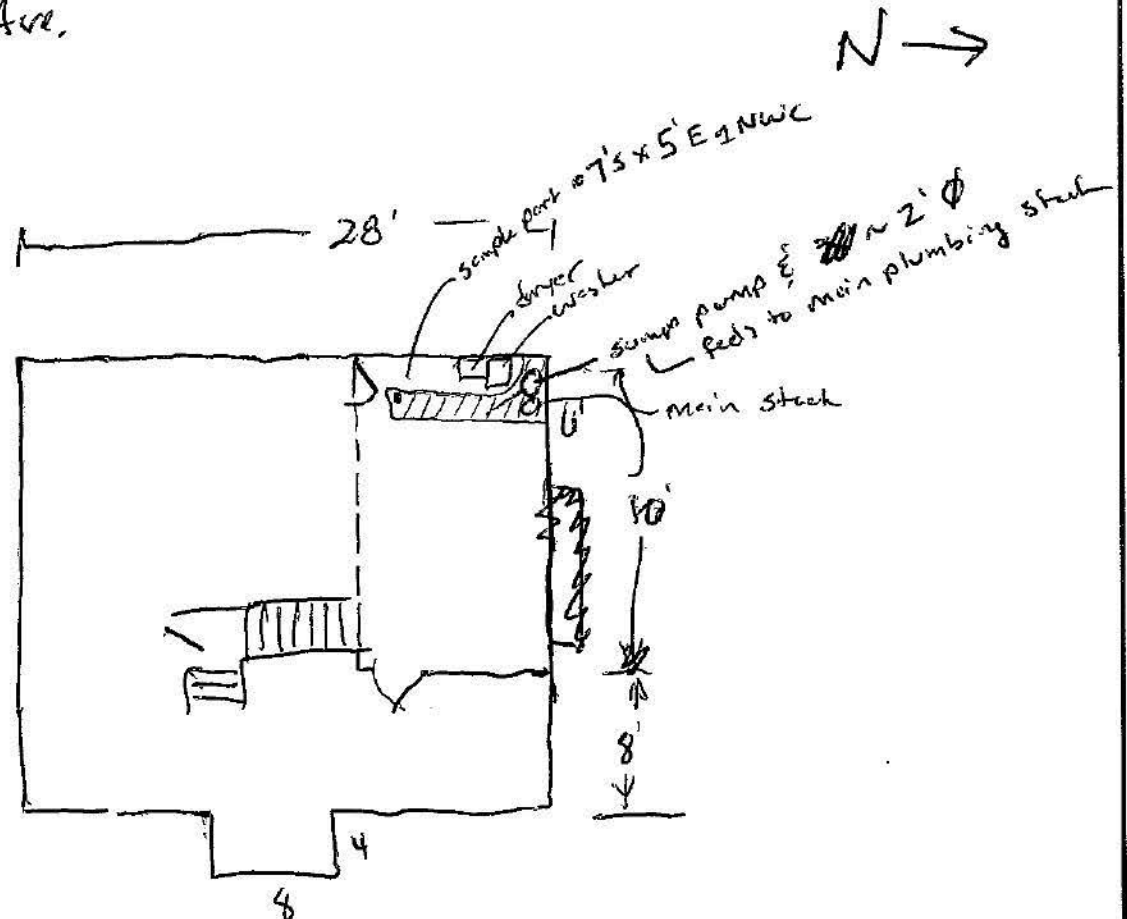
Residence ID:	15	Address:	223 Boston Ave
Sample ID:	SS-15	Location:	Waterloo
Date:	5/2/2011	Time:	1100
Sampler(s):	jmc/jme	Summa Canister ID:	668D
Flow Controller ID:	97	Flow Controller Rate Setting (cc/min):	
Start Time:	1111	Finish Time:	1150
Pre-Sampling Vacuum (In Hg):	-29	Post-Sampling Vacuum (In Hg):	-2.5
Organic Vapor Reading (ppm):	ambient 0.0ppm SS: 0.0ppm	PID used:	106 ramp
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	mini PAF 3000 #1 - different from prev. wk (#2) TD-15 Grab
Comments:			
Sketch:			



PROJECT: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_


JOB NO. \_\_\_\_\_ Date 4-27-11 Comp. By JE/MA CHECKED BY: IS

223 E. Boston Ave.



Basement Mostly finished, client didn't invite us into other base rms.

→ client works 3rd shift & is laying down

 = painted concrete, other appears to be 12x12 flr tiles

# Terracon

Street Address: 227 Boston Ave

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/25/2011

Time of Arrival: 1100 Time of Departure: 1145

Names of Terracon Representatives: John Brimeyer  
Joe Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/2011

Time of Follow-Up Visit: 1100

Items Completed as Noted:

Joe Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature



Street Address: 227 Boston Ave

Name of Resident: [REDACTED]

Date and Time of Visit: 4/25/2011, 11:00 am

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McManis  
Terracon Representative Signature

[REDACTED]  
Resident Signature

17  
**Terracon**

Street Address: 227 Boston Ave  
Name of Resident: [REDACTED]

**Arrival Checklist**

Date of Visit: 4/28/2021

Time of Arrival: 1100 Time of Departure: 1220

Names of Terracon Representatives: John Brunner  
Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

John Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

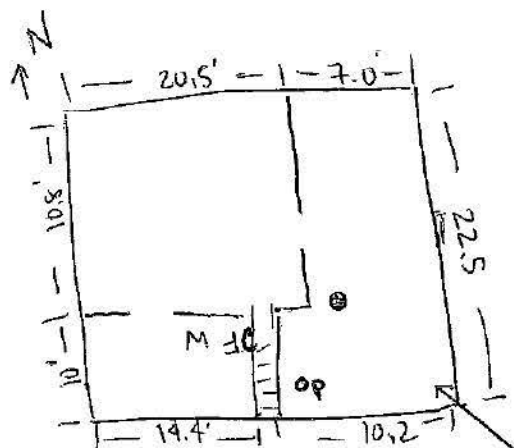
**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	17	Address:	227 Boston
Sample ID:	SS-17	Location:	Waterloo
Date:	4/28/2011	Time:	1100
Sampler(s):	Jfb/jmc	Summa Canister ID:	6631
Flow Controller ID:		Flow Controller Rate Setting (cc/min):	
Start Time:	1115	Finish Time:	1145
Pre-Sampling Vacuum (in Hg):	-28.5	Post-Sampling Vacuum (in Hg):	-4
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	TO-15
Comments:	Grab		

Sketch:

F: furnace  
W: H<sub>2</sub>O heater  
C: Chimney



Flux drain  
op = port

gas can be unmonitored  
sum blower must be drained  
but small amt of gas remaining



**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	17	Address:	227 Boston
Sample ID:	SSD-17	Location:	Waterloo
Date:	4/28/2011	Time:	1100
Sampler(s):		Summa Canister ID:	1536
Flow Controller ID:		Flow Controller Rate Setting (cc/min):	
Start Time:	1146	Finish Time:	1216
Pre-Sampling Vacuum (in Hg):	-28	Post-Sampling Vacuum (in Hg):	-3
Organic Vapor Reading (ppm):		PID used: MiniRAE 3000	ambient: 1.2 ppm 1.2 ppm
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:	ambient: 1.2 ppm		
<p>Sketch:</p> <p style="text-align: center;">See SS-17</p>			

# Terracon

Street Address: 2301 Boston

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27/2011

Time of Arrival: 10:30 Time of Departure: 11:15

Names of Terracon Representatives: John Brimeyer

Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29

Time of Follow-Up Visit: 11:00

Items Completed as Noted:

Jim Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature



Street Address: 2310 Boston

Name of Resident: [REDACTED]

Date and Time of Visit: 4/27/2011

### Sampling Port Installation Checklist

☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

☒ Install sampling port in accordance with work plan procedures.

☒ Clean up any debris.

☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Joseph McClancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 236 Boston Ave

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1100

Time of Departure: 1155

Names of Terracon Representatives: jen clancy  
justin anwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jennifer Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	20	Address:	236 Boston Ave
Sample ID:	SS-20	Location:	Waterloo
Date:	4/29/2011	Time:	1100
Sampler(s):	jme / jme	Summa Canister ID:	12820
Flow Controller ID:	198	Flow Controller Rate Setting (cc/min):	
Start Time:	1111	Finish Time:	1156
Pre-Sampling Vacuum (in Hg):	-28.5	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):	ambient: 0.1 ppm SS: 0.5 ppm	PID used:	Mini PAF 3000
Summa Canister went to Ambient?	Yes / <u>No</u>	Method:	Grab
Comments:			
Sketch:	<p>             N ↑              9'              22'              2'              barrier (chota wall). assume H<sub>2</sub>O heater is behind the barrier but can't see or get to it.              ● = drain              op = port              C = chimney              F = furnace         </p>		



# Terracon

Street Address: 239 Boston Ave.  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27/11

Time of Arrival: 1330

Time of Departure: 1430

Names of Terracon Representatives: Justin Fennell  
Mark Anderson

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/11

Time of Follow-Up Visit: 300 PM

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

\_\_\_\_\_  
Resident Signature



Street Address: 239 Boston Ave.

Name of Resident: [REDACTED]

Date and Time of Visit: 4-27-11 @ 1:30p

### Sampling Port Installation Checklist

☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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---

---

☒ Install sampling port in accordance with work plan procedures.

☒ Clean up any debris.

☐ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

*Did not want to see it*

Items Completed as Noted:

Terracon Representative Signature

Resident Signature

# Terracon

Street Address: 239 Boston Ave  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 9/20/2021

Time of Arrival: 1540 Time of Departure: 1635

Names of Terracon Representatives: Jim Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Justin Enwall  
Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

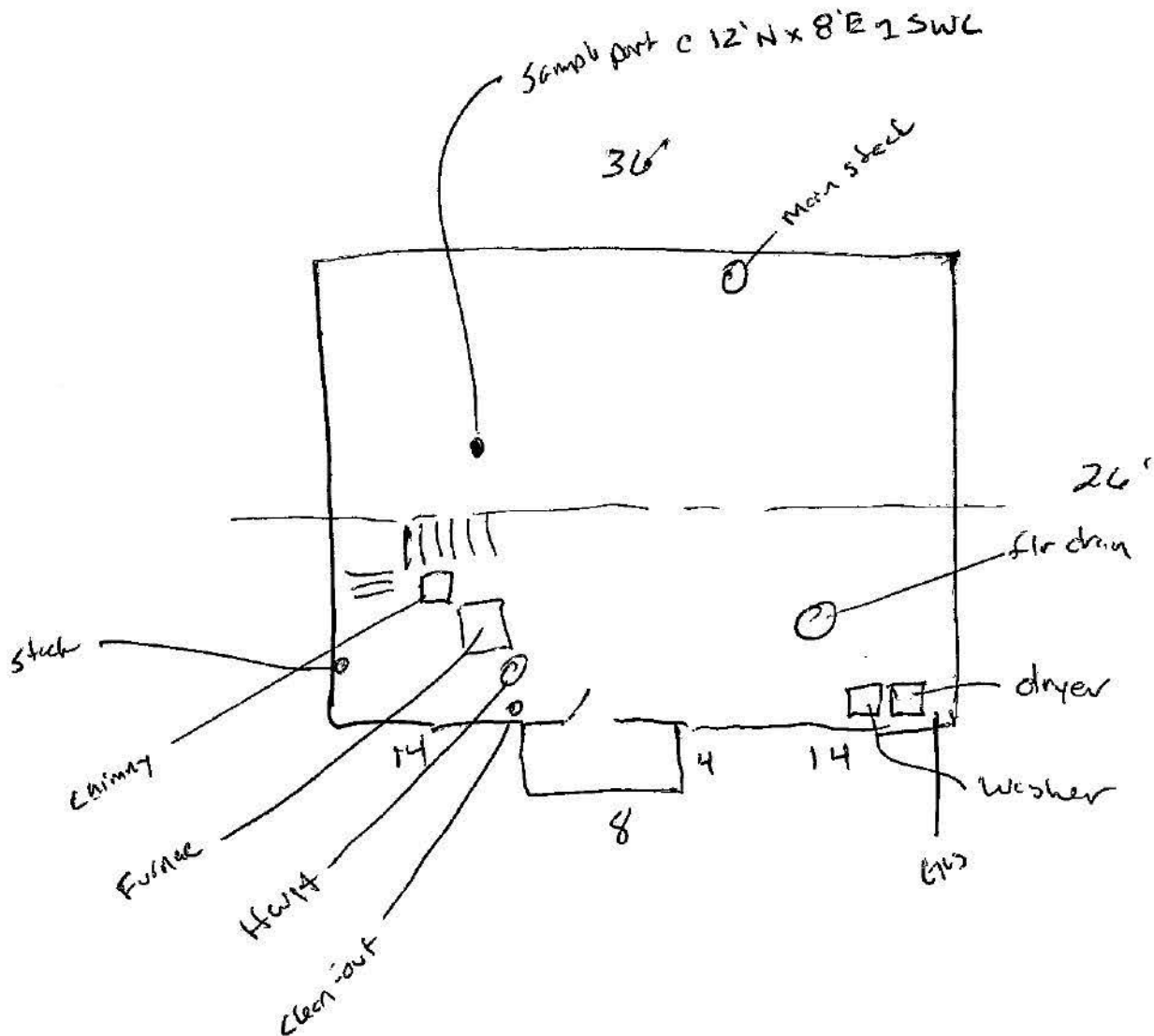
Residence ID:	21	Address:	239 Boston Ave
Sample ID:	SS-21	Location:	Waterloo
Date:	4/29/2011	Time:	1540
Sampler(s):	jmc / jme	Summa Canister ID:	11146
Flow Controller ID:	55	Flow Controller Rate Setting (cc/min):	
Start Time:	1556	Finish Time:	1630
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-3
Organic Vapor Reading (ppm):	ambient: 0.3 ppm SS: 0.1 ppm	PID used:	mini RAE 3000
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	TO15 Grab
Comments:			
Sketch:			

PROJECT: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

JOB NO. \_\_\_\_\_ Date 4-27-11 Comp. By JE/MA CHECKED BY: \_\_\_\_\_

239 Boston Ave

N →



Washer drain = PVC above grade to flr drain



# Terracon

Street Address: 240 Boston Ave

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/26/2011

Time of Arrival: 3<sup>30</sup> Time of Departure: \_\_\_\_\_

Names of Terracon Representatives: John Brumeyer

Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation \_\_\_\_\_ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire \_\_\_\_\_ Indoor Air Sampling Canister Installation

\_\_\_\_\_ Indoor Air Sampling Canister Removal \_\_\_\_\_ Outdoor Air Sampling

\_\_\_\_\_ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28

Time of Follow-Up Visit: 3<sup>00</sup> pm

Items Completed as Noted:

Jim H. Clancy  
Terracon Representative Signature

[REDACTED]

# Terracon

Street Address: 240 Boston Ave

Name of Resident: [REDACTED]

Date and Time of Visit: [REDACTED]

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

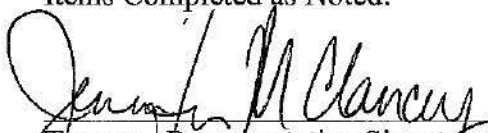
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature



# Terracon

Street Address: 240 Boston Ave

Name of Resident: [REDACTED]

22

## Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 3:00

Time of Departure: 3:55

Names of Terracon Representatives: John Brunner

Jim Clancy

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

John J. Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	22	Address:	240 Boston Ave
Sample ID:	SS-22	Location:	Waterloo
Date:	4/28/2011	Time:	300
Sampler(s):	Jfb / Jmc	Summa Canister ID:	6578
Flow Controller ID:		Flow Controller Rate Setting (cc/min):	
Start Time:	11308	Finish Time:	1550
Pre-Sampling Vacuum (In Hg):	-30	Post-Sampling Vacuum (In Hg):	-3.8
Organic Vapor Reading (ppm):		PID used:	Hum RAE 3000
			ambient: 1.4 ppm Subslab: 1.2 ppm
Summa Canister went to Ambient?	Yes / No	Method:	TD-15
			Grab
Comments:			
Sketch:			

# Terracon

Street Address: 302 Boston Ave  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-25-11

Time of Arrival: 10:30

Time of Departure: 12:00

Names of Terracon Representatives:

Justin Enwall  
Mark Anderson

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☐ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/11

Time of Follow-Up Visit: 0900

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

Resident Signature [REDACTED]



# Terracon

Street Address: 302 Boston Ave

Name of Resident: [REDACTED]

Date and Time of Visit: 4/25/11 10:30

## Sampling Port Installation Checklist

☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

Drilled the SSMP borehole through concrete covered  
area

☒ Install sampling port in accordance with work plan procedures.

☒ Clean up any debris.

☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

Res 

# Terracon

Street Address: 302 Boston  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 910

Time of Departure: 1000

Names of Terracon Representatives: Justin Enwall  
Rob Bergman

- ☒ Introduce Terracon Representatives and Show Terracon Identification
- ☒ Verify identity of resident; confirm authority to allow entry
- ☒ Explain purpose of visit (check as appropriate):
- |   |  |
|---|--|
| <input type="checkbox"/> Sample Port Installation             | <input checked="" type="checkbox"/> Sub-Slap Vapor Sampling        |
| <input type="checkbox"/> Completion of Questionnaire          | <input type="checkbox"/> Indoor Air Sampling Canister Installation |
| <input type="checkbox"/> Indoor Air Sampling Canister Removal | <input type="checkbox"/> Outdoor Air Sampling                      |
| <input type="checkbox"/> Other [Explain: _____]               |  |

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Justin Enwall  
Terracon Representative Signature

[REDACTED]  
Resident Signature

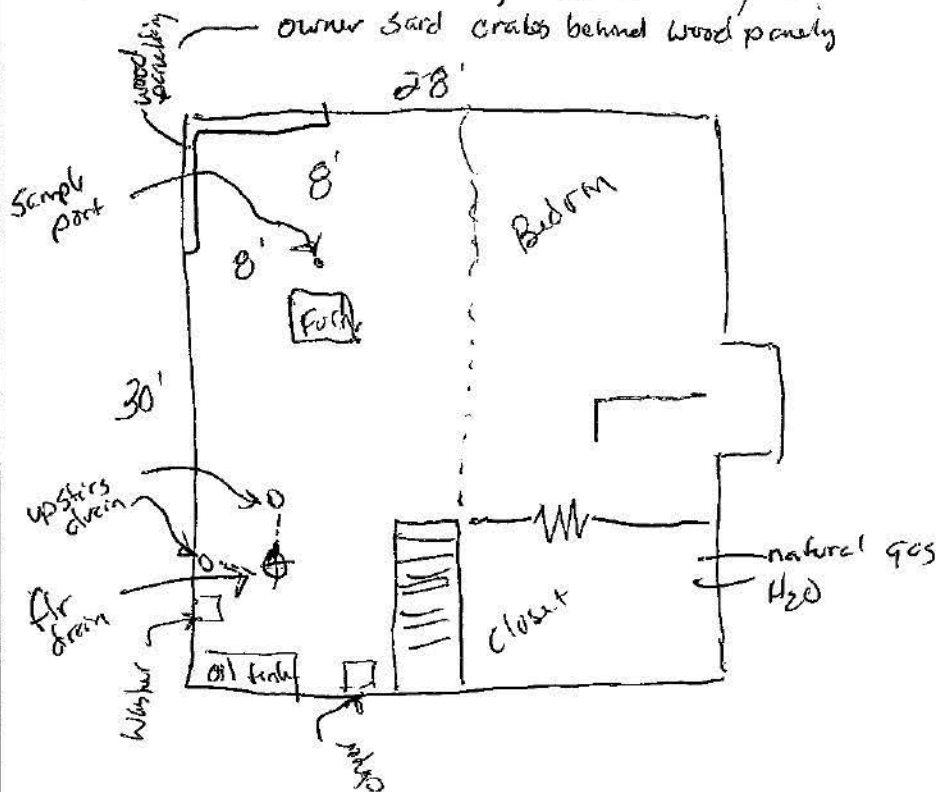
VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	28	Address:	302 Boston
Sample ID:	SS-28	Location:	Waterloo, IA
Date:	4/28/11	Time:	910
Sampler(s):	JME/ABG	Summa Canister ID:	1519
Flow Controller ID:	1-79	Flow Controller Rate Setting (cc/min):	200 cc/min
Start Time:	915	Finish Time:	957
Pre-Sampling Vacuum (in Hg):	25.5 in Hg	Post-Sampling Vacuum (in Hg):	1.5 in Hg
Organic Vapor Reading (ppm):	1.5	PID used:	WBL multiPac 3000 #12 with 10.6 eV lamp
Summa Canister went to Ambient?	Yes <input checked="" type="radio"/> No	Method:	Grab
Comments:	Purge 200 cc from SSMP and ~10 cc from flow controller prior to sampling		
Sketch:	see detailed sketch		

PROJECT: Chamberlain Manufacturing Corporation - 302 Boston Ave Page 1 of 1  
 JOB NO. 07107020 Date 4-25-91 Comp. By JME / MA CHECKED BY: \_\_\_\_\_

302 Boston Ave, W'100 / story & 1/2 (Cape Cod)



fir = E 1/3 = painted concrete  
 W 2/3 = various 12x12" fir tile w/ rugs

oil tank = no longer used



# Terracon

Street Address: 326 Boston Ave

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/25/2011

Time of Arrival: 4<sup>30</sup>

Time of Departure: ~500

Names of Terracon Representatives: John Brumeyer

Ter Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28 & 4/29

Time of Follow-Up Visit: 8:00 am

Items Completed as Noted:

Ter Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature



# Terracon

Street Address: 3740 Boston Ave  
Name of Resident: [REDACTED]  
Date and Time of Visit: 4/25/2011 430

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

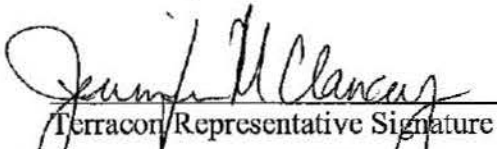
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

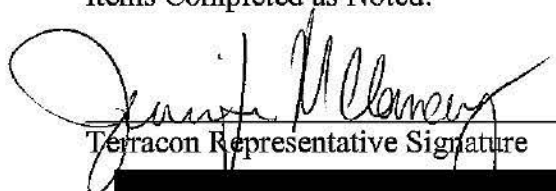
# Terracon

Street Address: 3216 Boston AveName of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/2011Time of Arrival: 800 Time of Departure: 825Names of Terracon Representatives: John BrumeyerJoe Clancy☒ Introduce Terracon Representatives and Show Terracon Identification☒ Verify identity of resident; confirm authority to allow entry☒ Explain purpose of visit (check as appropriate):☐ Sample Port Installation☐ Sub-Slab Vapor Sampling☐ Completion of Questionnaire☒ Indoor Air Sampling Canister Installation☐ Indoor Air Sampling Canister Removal☐ Outdoor Air Sampling☐ Other [Explain: \_\_\_\_\_]☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.Date of Follow-Up Visit: 4/29/2011Time of Follow-Up Visit: 800

Items Completed as Noted:


  
Terracon Representative Signature


  
Resident Signature

# Terracon


Street Address: 320 Boston AveName of Resident: [REDACTED]Date and Time of Visit: 4/28/2011

## Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:

Date: 4/29/2011Time: 8:00

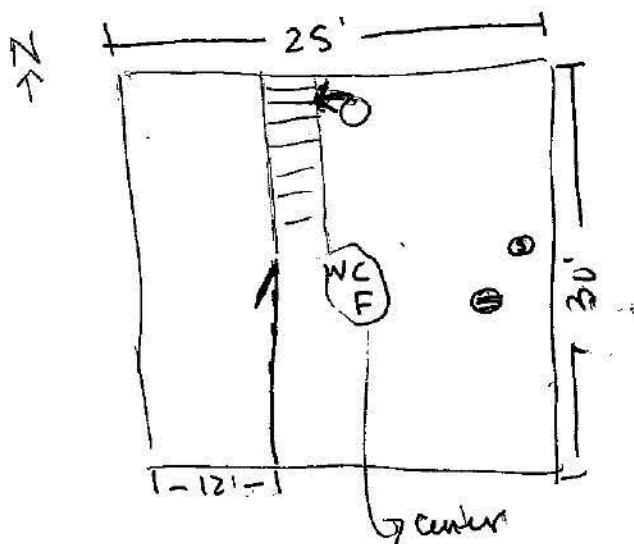
Items Completed as Noted:

  
Terracon Representative Signature  
Resident Signature

## Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	33	Address:	326 Boston Ave
Sample ID:	1A-33-B	Location:	<del>under</del> Water/Wrap
Date:	4/28/2011	Time:	810
Sampler(s):	HH / jme	Summa Canister ID:	12543
Flow Controller ID:	K431	Flow Controller Rate Setting (cc/min):	24hr
Start Time:	810 4/28	Finish Time:	804 4/29
Pre-Sampling Vacuum (in Hg):	-29.0	Post-Sampling Vacuum (in Hg):	-1.5
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes <input checked="" type="radio"/> No	Method:	TO15 Grab
Comments:			

Sketch: under basement stairs, on top shelf



(S) - sewer  
 stack  
 (E) - drain  
 W = H<sub>2</sub>O  
 Heater  
 C = chimney  
 F = furnace

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020  
PROJECT LOCATION: 326 Boston Ave (#33)  
DATE INSTALLED: 4/28/2011  
TIME INSTALLED: 8:10  
ADDRESS INSTALLED: Same  
SAMPLE ID: 1A-33-B  
SAMPLE LOCATION: Basement - under stairs, on shelf  
DEVICE #: 12543 CONTROLLER#: V431  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 4/29  
PLANNED RETRIEVAL TIME: 8:10  
ACTUAL RETRIEVAL TIME: 8:04  
TERRACON REPRESENTATIVE: June 1/11/11

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702  
870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

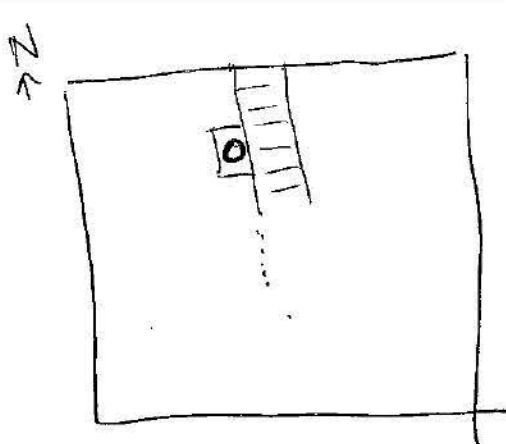


**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	33	Address:	326 Boston Ave
Sample ID:	1A-33-1	Location:	Waterloo
Date:	4/28/2011	Time:	
Sampler(s):	gfb/jmc	Summa Canister ID:	0112
Flow Controller ID:	K392	Flow Controller Rate Setting (cc/min):	
Start Time:	820	Finish Time:	813
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	TO-15 Grab
Comments:			

**Sketch:**



In living room (W side of house), on desk along E wall

**DO NOT TOUCH**

**SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07W702W  
PROJECT LOCATION: 324 Boston Ave. (#33)  
DATE INSTALLED: 4/28/2011  
TIME INSTALLED: 8:18  
ADDRESS INSTALLED: same  
SAMPLE ID: 1A-33-1  
SAMPLE LOCATION: Living room on desk  
  
DEVICE #: 0112 CONTROLLER#: K392  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 4/29/2011  
PLANNED RETRIEVAL TIME: 8:18  
ACTUAL RETRIEVAL TIME: 8:13  
TERRACON REPRESENTATIVE: jme / jpb

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702  
870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

# Terracon

Street Address: 326 Boston Ave 83  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 800 Time of Departure: 855

Names of Terracon Representatives: jen clancy  
justin cunniff

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal ✓2

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jennifer M. Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	33	Address:	326 Boston Ave
Sample ID:	SS-33	Location:	Waterloo
Date:	4/29/2011	Time:	800
Sampler(s):	jmc / jmc	Summa Canister ID:	12345
Flow Controller ID:		Flow Controller Rate Setting (cc/min):	
Start Time:	810	Finish Time:	850
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):	Ambient: 0.3 ppm SS: 0.1 ppm	PID used:	Mum Rae 3000
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	TD-15 Grab
Comments:			
Sketch:			

Street Address: 2221 E. 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/24/2011

Time of Arrival: 1:30 pm Time of Departure: \_\_\_\_\_

Names of Terracon Representatives: John Brumey  
Mr. Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

\_\_\_\_\_ Sub-Slap Vapor Sampling

\_\_\_\_\_ Completion of Questionnaire

\_\_\_\_\_ Indoor Air Sampling Canister  
Installation

\_\_\_\_\_ Indoor Air Sampling Canister  
Removal

\_\_\_\_\_ Outdoor Air Sampling

\_\_\_\_\_ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/2011

Time of Follow-Up Visit: 10 am

Items Completed as Noted:

John Brumey  
Terracon Representative Signature

[REDACTED]



Street Address: 2221 E 24th St  
Name of Resident: [REDACTED]  
Date and Time of Visit: 4/24/201

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

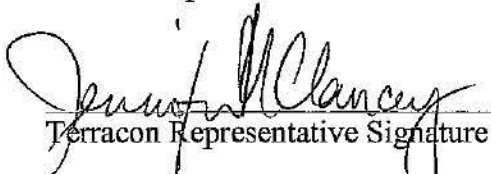
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

[REDACTED]  
Resident Signature



# Terracon

Street Address: 2221 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/24/2011

Time of Arrival: 1000 Time of Departure: 1055

Names of Terracon Representatives: Jen Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jennifer McClancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	37	Address:	2221 E 4th St
Sample ID:	SS-37	Location:	Waterloo
Date:	4/29/2014	Time:	1000
Sampler(s):	jme/jme	Summa Canister ID:	04750
Flow Controller ID:	150	Flow Controller Rate Setting (cc/min):	
Start Time:	1016	Finish Time:	1050
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):	ambient: 0.1 ppm SS: 0.1 ppm	PID used:	Muni PAF 3000
Summa Canister went to Ambient?	Yes / No	Method:	TO-15      Grab
Comments:			
Sketch:	<p style="text-align: right;">Op - port ⊕ drain</p>		

# Terracon

Street Address: 2227 E. 4th ST

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 1530

Time of Departure: 1630

Names of Terracon Representatives: Justin Enwall

Mark Anderson

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: ]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/11 4/29/11

Time of Follow-Up Visit: 1300

Items Completed as Noted:

  
Terracon Representative Signature

Res [REDACTED]



Street Address: 2227 E. 4th St

Name of Resident: [Redacted]

Date and Time of Visit: 4-26-11

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

Some paint on floor

- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

[Signature]

Terracon Representative Signature

[Redacted]  
Resident Signature

# Terracon

Street Address:

Name of Resident:

2227 E 4th Street

## Arrival Checklist

Date of Visit:

4/28/11

Time of Arrival:

1300

Time of Departure:

1330

Names of Terracon Representatives:

Justin Eucall

Rob Bergman



Introduce Terracon Representatives and Show Terracon Identification



Verify identity of resident; confirm authority to allow entry



Explain purpose of visit (check as appropriate):

\_\_\_\_ Sample Port Installation

\_\_\_\_ Sub-Slab Vapor Sampling

\_\_\_\_ Completion of Questionnaire



Indoor Air Sampling Canister  
Installation

\_\_\_\_ Indoor Air Sampling Canister  
Removal

\_\_\_\_ Outdoor Air Sampling

\_\_\_\_ Other [Explain: \_\_\_\_\_]



Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit:

4/29/11

Time of Follow-Up Visit:

1300

Items Completed as Noted:

*[Signature]*

Terracon Representative Signature

Resident Signature

# Terracon

Street Address: 2227 E 4th Street  
Name of Resident: [REDACTED]  
Date and Time of Visit: 4/28/11 13:00

## Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:  
Date: 4/29/11  
Time: 13:00

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

[REDACTED]  
Resident Signature



**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	38	Address:	2227 E 4th St
Sample ID:	ZA-38-B	Location:	Waterloo, IA
Date:	4/28/11 & 4/29/11	Time:	1305
Sampler(s):	JME/RPB	Summa Canister ID:	1407
Flow Controller ID:	K137	Flow Controller Rate Setting (cc/min):	24 hour
Start Time:	1319 4/28/11	Finish Time:	1605 4/29/11
Pre-Sampling Vacuum (in Hg):	-28.5	Post-Sampling Vacuum (in Hg):	-4
Organic Vapor Reading (ppm):	—	PID used:	—
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	cans of paint chemical bottles in SE and SW corner, put in NE corner of basement		
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020  
PROJECT LOCATION: Waterloo, MN  
DATE INSTALLED: 4/28/11  
TIME INSTALLED: 1319  
ADDRESS INSTALLED: ~~IA~~ B 2227 E 4th St  
SAMPLE ID: IA- -B  
SAMPLE LOCATION: top of dryer in NE corner,  
South of water main  
DEVICE #: 1407 CONTROLLER#: 101137  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: \_\_\_\_\_  
PLANNED RETRIEVAL TIME: 1319  
ACTUAL RETRIEVAL TIME: 1805  
TERRACON REPRESENTATIVE: Jim IAPB

COMMENTS: 28.5 in 5

# **Terracon**

Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	38	Address:	2227 E 4th Street
Sample ID:	ZA-38-MF	Location:	Waterloo, IA
Date:	4/28/11 & 4/29/11	Time:	1305
Sampler(s):	JME/RPB	Summa Canister ID:	1426
Flow Controller ID:	11484	Flow Controller Rate Setting (cc/min):	24 hour
Start Time:	1314	Finish Time:	1602
Pre-Sampling Vacuum (in Hg):	29.5 in Hg	Post-Sampling Vacuum (in Hg):	-4 in Hg on 4/29/11
Organic Vapor Reading (ppm):	—	PID used:	—
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	on top of microwave near living / kitchen entry, about in center of main floor		
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020

PROJECT LOCATION: Waterloo IA

DATE INSTALLED: 4/28/11

TIME INSTALLED: 1714

ADDRESS INSTALLED: 2227 E 4th Street

SAMPLE ID: ZA- - MF

SAMPLE LOCATION: on top of manhole by entry  
to living room, 5 ft above ground

DEVICE #: 1426 CONTROLLER#: 1484

LAB ID #:

RETRIEVAL DATE: 4/29/11

PLANNED RETRIEVAL TIME: 1300

ACTUAL RETRIEVAL TIME: 1602

TERRACON REPRESENTATIVE: JME

COMMENTS: 2AS in Hg -

# **Terracon**

Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40th Avenue  
Bettendorf, Iowa 52722

# Terracon

Street Address: 2227 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1310

Time of Departure: 1610

Names of Terracon Representatives: Jen Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling + Dup

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal ✓

☐ Outdoor Air Sampling

☐ Other [Explain: ]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit:

Time of Follow-Up Visit:

Items Completed as Noted:

Jennifer McClancy  
Terracon Representative Signature

Resident Signature

Provide letter

## Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	38	Address:	2227 E 4th St
Sample ID:	SS-38	Location:	Waterloo
Date:	4/29/2017	Time:	1310
Sampler(s):	jmc / jmc	Summa Canister ID:	S-1530
Flow Controller ID:	10	Flow Controller Rate Setting (cc/min):	
Start Time:	1317	Finish Time:	1357
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):	ambient: SS:	PID used:	mini PAF 3000
Summa Canister went to Ambient?	Yes / No	Method:	TD 15 Grab
Comments:			
Sketch:			



414 324 4675

Terracon

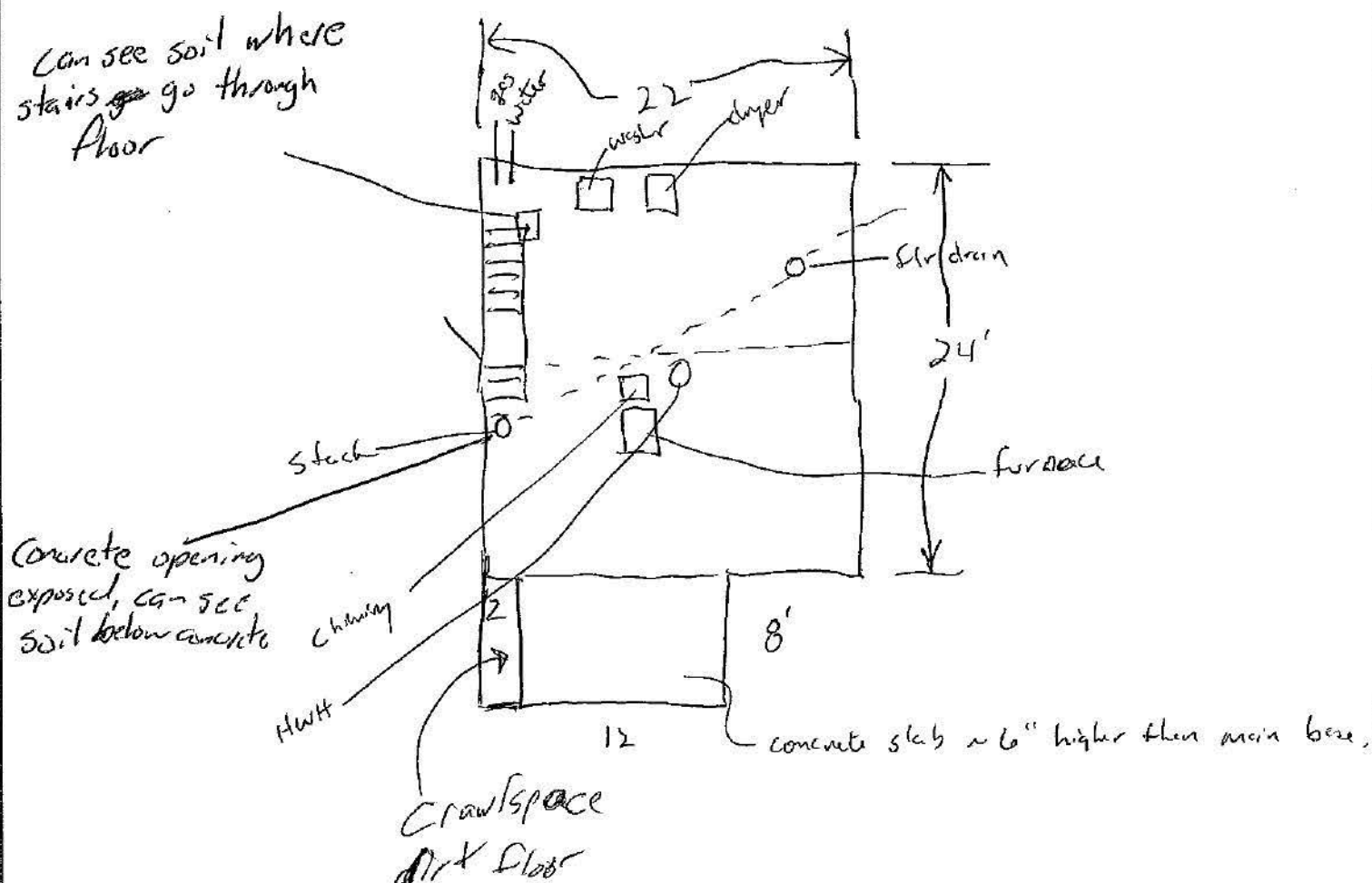
PROJECT: Chamberlain Manufacturing Corporation

Page 1 of 1

JOB NO. 07107020 Date 4-26-11 Comp. By JE/MA

CHECKED BY: \_\_\_\_\_

2227 E. 4<sup>th</sup> ST.



## Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	38	Address:	2227 E 4th St
Sample ID:	SSD-38	Location:	Waterloo
Date:	4/22/2011	Time:	1310
Sampler(s):	smc/lme	Summa Canister ID:	92042
Flow Controller ID:	71	Flow Controller Rate Setting (cc/min):	
Start Time:	1317	Finish Time:	1357
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):	ambient: 0.2 ppm SS: 0.2 ppm	PID used:	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	Method:	TO-15 Grab
Comments:			
Sketch:			

# Terracon

39

Street Address: 2233 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27/2011

Time of Arrival: 5:15

Time of Departure: 6:00

Names of Terracon Representatives:

Jen Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29

Time of Follow-Up Visit: 2:30

Items Completed as Noted:

Jen Clancy  
Terracon Representative Signature

[REDACTED]

# Terracon

Street Address: 9733 E 4th St

Name of Resident: [REDACTED]

Date and Time of Visit: 5:30 ; 4/12/2011

39

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

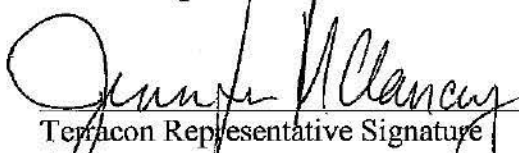
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature



# Terracon

Street Address: 2233 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1430

Time of Departure: 3:40 PM

Names of Terracon Representatives: Jim Clancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

  
Terracon Representative Signature

PER 4/29/11

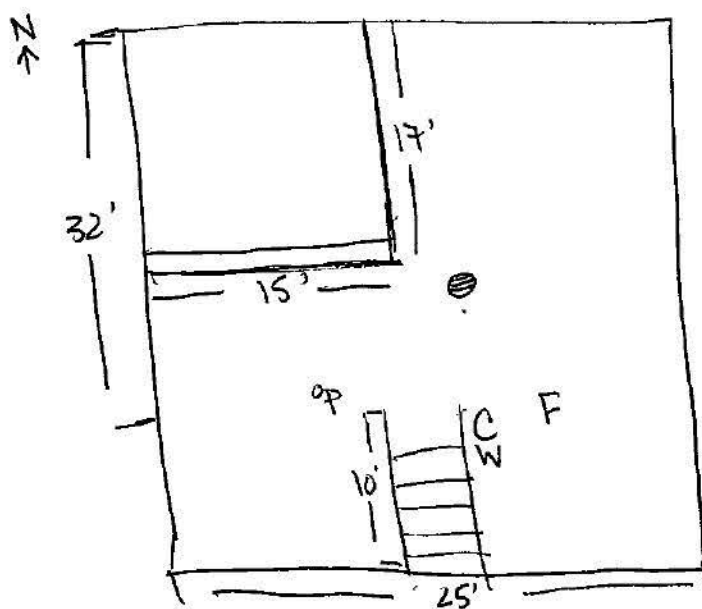
4/29/11

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	39	Address:	2233 E 4th St
Sample ID:	SS-39	Location:	waterloo
Date:	4/29/2011	Time:	1430
Sampler(s):	jmc / jme	Summa Canister ID:	6386
Flow Controller ID:	11	Flow Controller Rate Setting (cc/min):	
Start Time:	1443	Finish Time:	1519
Pre-Sampling Vacuum (in Hg):	-28	Post-Sampling Vacuum (in Hg):	-1
Organic Vapor Reading (ppm):	ambient: 1.3 ppm SS: 0.2 ppm	PID used:	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	Method:	TD Grab
Comments:			

Sketch:



⊗ = floor drain  
 op = port  
 C = chimney  
 F = furnace  
 W = water heater



# Terracon

Street Address: 2237 E. 4th St.

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27/2011

Time of Arrival: 130

Time of Departure: 2<sup>10</sup>

Names of Terracon Representatives: John Brummer

Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2 & 5/3

Time of Follow-Up Visit: 12<sup>00</sup>

Items Completed as Noted:

Jim Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature



Street Address: 2237 E. 4th St

Name of Resident: [REDACTED]

Date and Time of Visit: 4/27/2011 5:30

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

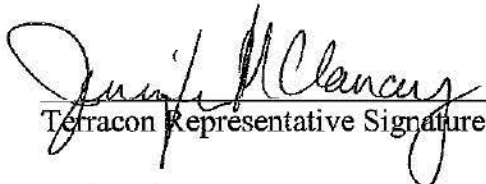
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

# Terracon

Street Address: 2237 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1200 Time of Departure: 1230

Names of Terracon Representatives: Jen Clancy  
Justin Edwards

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☐ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☒ Indoor Air Sampling Canister  
Installation ✓

☐ Indoor Air Sampling Canister  
Removal

☒ Outdoor Air Sampling ✓

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3/2011

Time of Follow-Up Visit: 1200

Items Completed as Noted:

Jennifer McClancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

Street Address: 2237 E 4th St  
 Name of Resident: [REDACTED]  
 Date and Time of Visit: 1200 5/2/2011

## Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:  
 Date: 5/3/2011  
 Time: 1200

Items Completed as Noted:

  
 Terracon Representative Signature

  
 Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	40	Address:	2237 E 4th St
Sample ID:	1A + B - 40	Location:	Waterloo
Date:	5/2/2011	Time:	1200
Sampler(s):	pmc / jme	Summa Canister ID:	7465
Flow Controller ID:	K-384	Flow Controller Rate Setting (cc/min):	
Start Time:	1212	Finish Time:	1520 5/3
Pre-Sampling Vacuum (in Hg):	< -30	Post-Sampling Vacuum (in Hg):	-9
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 09107020

PROJECT LOCATION: Waterloo

DATE INSTALLED: 5/2/2011

TIME INSTALLED: 1212

ADDRESS INSTALLED: 2237 E 4th St

SAMPLE ID: 1A-B-40

SAMPLE LOCATION: SWC of basement on shelves

DEVICE #: 7465 CONTROLLER#: K386

LAB ID #:

RETRIEVAL DATE: 5/3/2011

PLANNED RETRIEVAL TIME: 1212

ACTUAL RETRIEVAL TIME: 1520

TERRACON REPRESENTATIVE: \_\_\_\_\_

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722



**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	40	Address:	2237 E 4th St
Sample ID:	1A-1-40	Location:	Waterloo
Date:	5/2/2011	Time:	1200
Sampler(s):	jmc/jme	Summa Canister ID:	9805 B
Flow Controller ID:	14407	Flow Controller Rate Setting (cc/min):	
Start Time:	1207	Finish Time:	1209 5/3
Pre-Sampling Vacuum (in Hg):	-27	Post-Sampling Vacuum (in Hg):	-3
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07607020  
PROJECT LOCATION: Waterloo  
DATE INSTALLED: 5/2/201  
TIME INSTALLED: \_\_\_\_\_  
ADDRESS INSTALLED: 2237 E 4th St  
SAMPLE ID: 1A-1-40  
SAMPLE LOCATION: Kitchen - on top of fridge  
DEVICE #: 9805B CONTROLLER#: K 407  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 5/3/201  
PLANNED RETRIEVAL TIME: 1200 (3)  
ACTUAL RETRIEVAL TIME: 1205 5/3  
TERRACON REPRESENTATIVE: gmc / jmc  
COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	40	Address:	2237 F 4th St
Sample ID:	AA-40	Location:	Waterloo
Date:	5/2/2011	Time:	1200
Sampler(s):	jmc / jme	Summa Canister ID:	11352
Flow Controller ID:	K153	Flow Controller Rate Setting (cc/min):	
Start Time:	1222	Finish Time:	1524
Pre-Sampling Vacuum (in Hg):	-29.5	Post-Sampling Vacuum (in Hg):	-3.5 5/3
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
<p>Sketch:</p>			

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	40	Address:	2234 E 4th St
Sample ID:	AAB-40	Location:	Waterloo
Date:	5/2/2011	Time:	1200
Sampler(s):	jmc / jme	Summa Canister ID:	<del>113</del> 1352N
Flow Controller ID:	KAL2	Flow Controller Rate Setting (cc/min):	
Start Time:	1222	Finish Time:	1524
Pre-Sampling Vacuum (in Hg):	-29.5	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020  
PROJECT LOCATION: Wentworth  
DATE INSTALLED: 5/2/2011  
TIME INSTALLED: \_\_\_\_\_  
ADDRESS INSTALLED: 2232 E 4th St  
SAMPLE ID: AA-40 CAD-40  
SAMPLE LOCATION: Backyard - W side of house on  
picnic table  
DEVICE #: 11352 1352N CONTROLLER#: K153 R462  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 5/3/2011  
PLANNED RETRIEVAL TIME: 1220  
ACTUAL RETRIEVAL TIME: \_\_\_\_\_  
TERRACON REPRESENTATIVE: Jim / Jim

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

# Terracon

Street Address: 2237 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

40

Date of Visit: 5/3/2011

Time of Arrival: 1200

Time of Departure: 1300 | Return 1520/1530

Names of Terracon Representatives: Jen Clancy  
Justin Enwall

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal x2

☒ Outdoor Air Sampling Removal x2

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jen Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

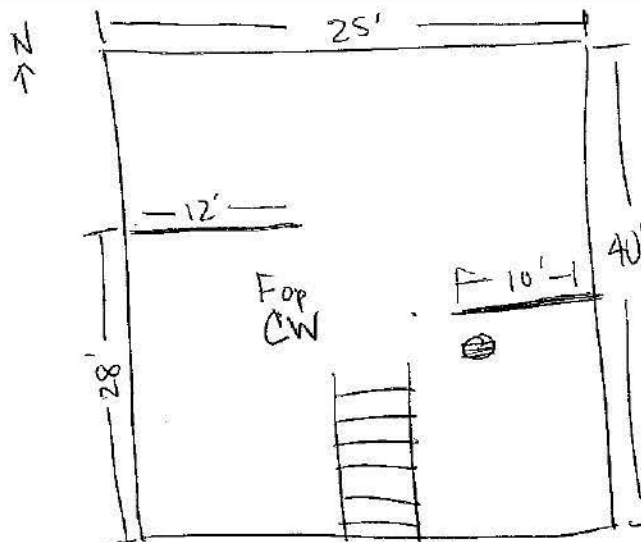


**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	40	Address:	2237 E 4th St
Sample ID:	SS-40	Location:	Waterloo
Date:	5/3/2011	Time:	1200
Sampler(s):	gmc/jme	Summa Canister ID:	04306
Flow Controller ID:	167	Flow Controller Rate Setting (cc/min):	
Start Time:	1216	Finish Time:	1258
Pre-Sampling Vacuum (in Hg):	-28.5	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):	ambient: 0.5 SS: 0.2	PID used:	mini RAE 3000
Summa Canister went to Ambient?	Yes <input checked="" type="radio"/> No	Method:	Grab
Comments:			

Sketch:



F=furnace  
C=chimney  
W=Hot water heater  
Op=port  
⊙=floor drain

# Terracon

Street Address: 2413 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27

Time of Arrival: 3:30 Time of Departure: \_\_\_\_\_

Names of Terracon Representatives: John Brumley

Jen Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation \_\_\_\_\_ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire \_\_\_\_\_ Indoor Air Sampling Canister Installation

\_\_\_\_\_ Indoor Air Sampling Canister Removal \_\_\_\_\_ Outdoor Air Sampling

\_\_\_\_\_ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2 & 5/3

Time of Follow-Up Visit: 3 pm

Items Completed as Noted:

Jennifer McClancy

Terracon Representative Signature

# Terracon

Street Address: 2413 F 4th St  
Name of Resident: [REDACTED]  
Date and Time of Visit: 4/27/2011 3:30

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

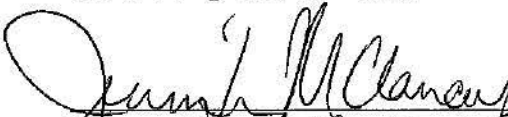
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature  
[REDACTED]

48  
**Terracon**

Street Address: 2413 E 4th ST

Name of Resident: [REDACTED]

**Arrival Checklist**

Date of Visit: 5/2/2011

Time of Arrival: 1830

Time of Departure: 1545

Names of Terracon Representatives:

Jen Clancy

Justin Entwistle

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☒ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3/2011

Time of Follow-Up Visit: 330

Items Completed as Noted:

Jen Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

45

Street Address: 2413 E 97th St  
Name of Resident: [REDACTED]  
Date and Time of Visit: 5/2/2011, 1630

## Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:  
Date: 5/3/2011  
Time: 330

Items Completed as Noted:

  
Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	45	Address:	2413 E 4th St
Sample ID:	1A-B-45	Location:	Waterloo
Date:	5/2/2011	Time:	1530
Sampler(s):	gmc/jmc	Summa Canister ID:	93149
Flow Controller ID:	K371	Flow Controller Rate Setting (cc/min):	
Start Time:	1543	Finish Time:	1633 5/3
Pre-Sampling Vacuum (in Hg):	-30	Post-Sampling Vacuum (in Hg):	-4.5
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:	Basement - main room on top of fridge		
Sketch:			



17

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020

PROJECT LOCATION: Wartwood

DATE INSTALLED: 5/2/2011

TIME INSTALLED: \_\_\_\_\_

ADDRESS INSTALLED: 2413 E 4th St

SAMPLE ID: 1A-8-45

SAMPLE LOCATION: Basement

DEVICE #: 93149 CONTROLLER#: K371

LAB ID #: \_\_\_\_\_

RETRIEVAL DATE: 5/3/11

PLANNED RETRIEVAL TIME: \_\_\_\_\_

ACTUAL RETRIEVAL TIME: 1:55:3

TERRACON REPRESENTATIVE: gmc/jmc

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

## Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	45	Address:	2413 E 4th St
Sample ID:	1A-1-45	Location:	Waterloo
Date:	5/2/2011	Time:	1530
Sampler(s):	JMC / Jme	Summa Canister ID:	7490
Flow Controller ID:	K471	Flow Controller Rate Setting (cc/min):	
Start Time:	1537	Finish Time:	1537
Pre-Sampling Vacuum (in Hg):	-28	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:	SE Bldm on table		
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07W020  
PROJECT LOCATION: Water/LOD  
DATE INSTALLED: 5/2/2011  
TIME INSTALLED: 1537  
ADDRESS INSTALLED: 2413 E 4th St  
SAMPLE ID: 1A-1-45  
SAMPLE LOCATION: \_\_\_\_\_

DEVICE #: 749U CONTROLLER#: K471  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 5/3/2011  
PLANNED RETRIEVAL TIME: 1537  
ACTUAL RETRIEVAL TIME: 1537  
TERRACON REPRESENTATIVE: \_\_\_\_\_

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702  
870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

# Terracon

Street Address: 2413 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 5/3/2011

Time of Arrival: 1530

Time of Departure: 1635

Names of Terracon Representatives:

Jen Clancy  
Justin Arnold

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal ✓

☐ Outdoor Air Sampling

☐ Other [Explain: ]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit:

Time of Follow-Up Visit:

Items Completed as Noted:

Jen Clancy

Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	45	Address:	2413 E 4th St
Sample ID:	<del>2413 E 4th St</del> SS-45	Location:	Waterloo
Date:	5/3/2011	Time:	1530
Sampler(s):	jmc / jmc	Summa Canister ID:	7788
Flow Controller ID:	178	Flow Controller Rate Setting (cc/min):	
Start Time:	1552	Finish Time:	1628
Pre-Sampling Vacuum (In Hg):	-29.5	Post-Sampling Vacuum (In Hg):	-1.5
Organic Vapor Reading (ppm):	ambient: 0.2 SS: 1.1 ppm	PID used:	miniRAE 3000
Summa Canister went to Ambient?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Method:	Grab
Comments:			
Sketch:	<p style="margin-left: 600px;"> W=water heater  F=furnace  Op=port  ● stove/drum  C=chimney </p>		

# Terracon

Street Address: 2417 E. 4th ST

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-27-11

Time of Arrival: 10:30

Time of Departure: 1130

Names of Terracon Representatives:

Justin Enwall

Mark Anderson

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11 and 5/3/11

Time of Follow-Up Visit: 10:00 AM

Items Completed as Noted:



Terracon Representative Signature

Resident Signature





Street Address: 2417 E. 4<sup>th</sup> ST

Name of Resident: [REDACTED]

Date and Time of Visit: 4-27-11 @ 10:30

### Sampling Port Installation Checklist



Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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Install sampling port in accordance with work plan procedures.



Clean up any debris.




Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Terracon Representative Signature

Resident Signature

476  
**Terracon**

Street Address: 2417 E Waterloo St  
Name of Resident: 

**Arrival Checklist**

Date of Visit: 5/2/2011

Time of Arrival: 1005

Time of Departure: 1022

Names of Terracon Representatives: Joseph A. Clancy  
Justin Enwall

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☒ Indoor Air Sampling Canister  
Installation #2

☐ Indoor Air Sampling Canister  
Removal

☒ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3/2011

Time of Follow-Up Visit: 1600

Items Completed as Noted:

Joseph A. Clancy  
Terracon Representative Signature



478  
**Terracon**

Street Address: 2477 E 4th St

Name of Resident: [REDACTED]

Date and Time of Visit: 5/2/2011 1000

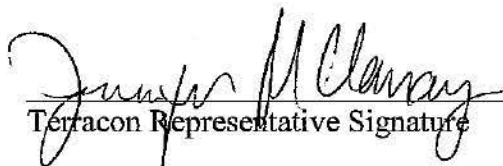
### Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:

Date: 5/3/2011

Time: 1000

Items Completed as Noted:

  
Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

*Change  
Sample #s*

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	46	Address:	297 E 4th St
Sample ID:	1A-B-46	Location:	Waterloo
Date:	5/1/2011	Time:	1011
Sampler(s):	one / one	Summa Canister ID:	D181
Flow Controller ID:	K 269	Flow Controller Rate Setting (cc/min):	
Start Time:	1011	Finish Time:	1015
Pre-Sampling Vacuum (in Hg):	-27	Post-Sampling Vacuum (in Hg):	-3
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 0707020  
PROJECT LOCATION: Waterloo  
DATE INSTALLED: 5/2/2011  
TIME INSTALLED: 1011  
ADDRESS INSTALLED: \_\_\_\_\_  
SAMPLE ID: ~~1A-B-4~~ 1A-B-46  
SAMPLE LOCATION: Basement - chair in center of rm  
DEVICE #: 0181 CONTROLLER#: K209  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 5/3/2011  
PLANNED RETRIEVAL TIME: 1011  
ACTUAL RETRIEVAL TIME: 1015  
TERRACON REPRESENTATIVE: JWC/fmc

COMMENTS:

# **Terracon**

Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

Change  
sample #

VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	47	Address:	2427 E 4th ST
Sample ID:	1A-1-47	Location:	Waterloo
Date:	5/2/2011	Time:	1008
Sampler(s):	gmc / gmc	Summa Canister ID:	7482
Flow Controller ID:	K387	Flow Controller Rate Setting (cc/min):	
Start Time:	1008	Finish Time:	1152
Pre-Sampling Vacuum (in Hg):	-30	Post-Sampling Vacuum (in Hg):	-5
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			



# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020

PROJECT LOCATION: 2421 E 4th St Waterloo

DATE INSTALLED: 5/2/2021

TIME INSTALLED: 1008

ADDRESS INSTALLED: same

SAMPLE ID: 1A-1-47

SAMPLE LOCATION: NW Bdrn on dresser

DEVICE #: 3482 CONTROLLER#: 16387

LAB ID #: \_\_\_\_\_

RETRIEVAL DATE: 5/3/

PLANNED RETRIEVAL TIME: 1010

ACTUAL RETRIEVAL TIME: 1152

TERRACON REPRESENTATIVE: \_\_\_\_\_

COMMENTS:

# **Terracon**

Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

## Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	47	Address:	2417 E 4th St
Sample ID:	AA-46	Location:	Wardw 60
Date:	5/2/11	Time:	1022
Sampler(s):	jme / jme	Summa Canister ID:	4497N
Flow Controller ID:	V339	Flow Controller Rate Setting (cc/min):	
Start Time:	1022 5/2	Finish Time:	1117 5/3
Pre-Sampling Vacuum (in Hg):	-30	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 0707020

PROJECT LOCATION: WATERLOO

DATE INSTALLED: 5/2/2011

TIME INSTALLED: 1022

ADDRESS INSTALLED: 2917 E 4TH ST

SAMPLE ID: AA-46

SAMPLE LOCATION: tree in backyard - W side of house

DEVICE #: 4497N CONTROLLER#: K331

LAB ID #:

RETRIEVAL DATE: 5/3/2011

PLANNED RETRIEVAL TIME: 1022

ACTUAL RETRIEVAL TIME:

TERRACON REPRESENTATIVE: Jane Jone

COMMENTS:

# **Terracon**

Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

# Terracon

46

Street Address: 2417 E 4th St

Name of Resident

## Arrival Checklist

Date of Visit: 5/3/2011

Time of Arrival: 1000 Time of Departure: 1150

Names of Terracon Representatives: Justin Clancy  
Justin Enwall

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: ]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit:

Time of Follow-Up Visit:

Items Completed as Noted:

Justin Clancy  
Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

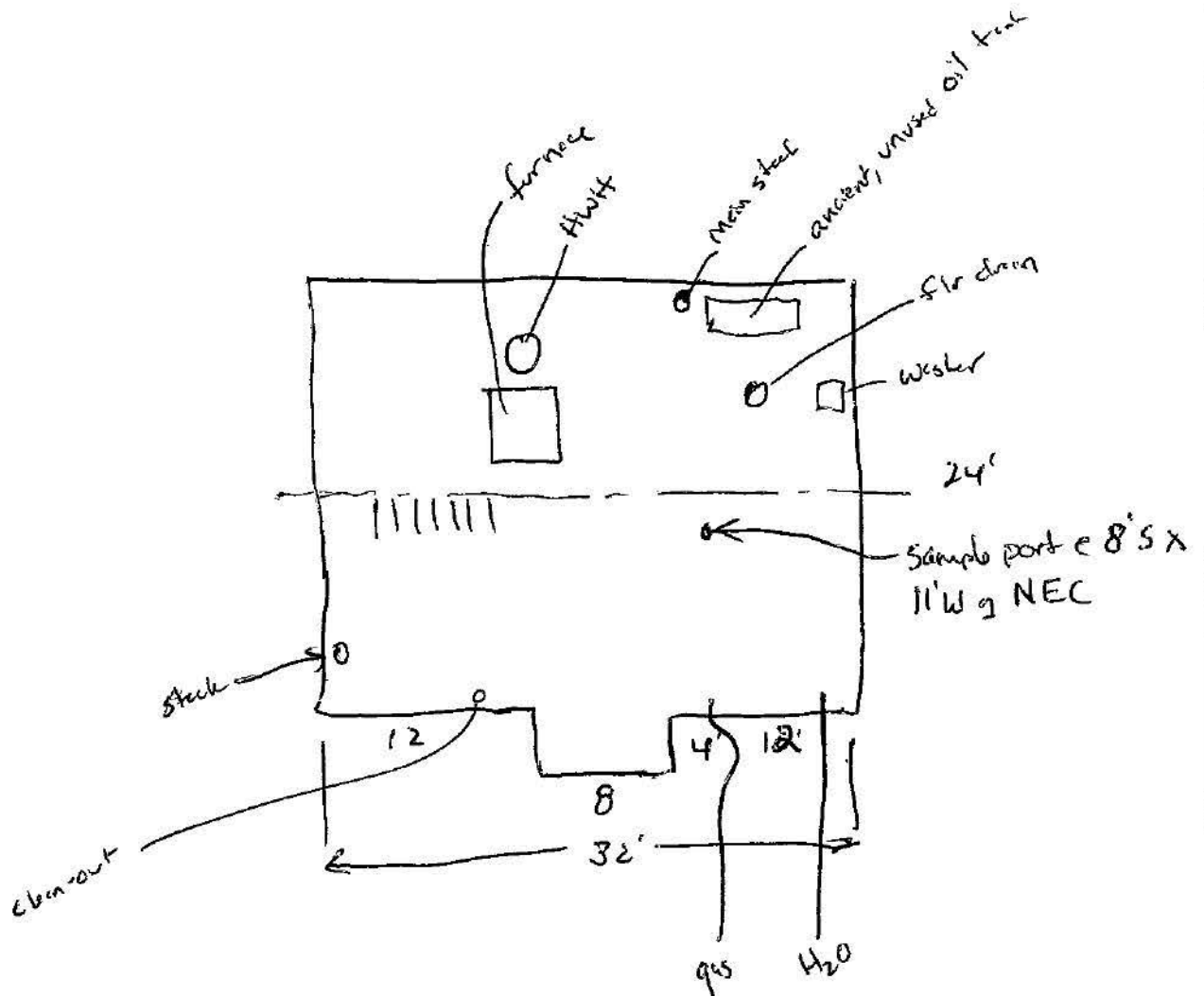
**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	46	Address:	2417 E 4th St
Sample ID:	SS-46	Location:	Waterloo
Date:	5/3/2011	Time:	1000
Sampler(s):	jmc/jme	Summa Canister ID:	93046
Flow Controller ID:	191	Flow Controller Rate Setting (cc/min):	
Start Time:	1024	Finish Time:	1107
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):	ambient: 0.3 SS: 0.0	PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	Grab
Comments:			
Sketch:			

PROJECT: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

JOB NO. \_\_\_\_\_ Date 4-27-11 Comp. By JE/MA CHECKED BY: \_\_\_\_\_

2417 E. 4<sup>th</sup> ST.



above grade  
Wesker pre's to flr drain

N →



# Terracon

Street Address: 2421 E. 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 10:30 Time of Departure: \_\_\_\_\_

Names of Terracon Representatives: Justin Enwall  
Mark Anderson

☒

Introduce Terracon Representatives and Show Terracon Identification

☒

Verify identity of resident; confirm authority to allow entry

☒

Explain purpose of visit (check as appropriate):

☒

Sample Port Installation

\_\_\_\_\_ Sub-Slab Vapor Sampling

☒

Completion of Questionnaire

\_\_\_\_\_ Indoor Air Sampling Canister  
Installation

\_\_\_\_\_

Indoor Air Sampling Canister  
Removal

\_\_\_\_\_ Outdoor Air Sampling

\_\_\_\_\_

Other [Explain: \_\_\_\_\_]

☒

Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/11

Time of Follow-Up Visit: 8-9

Items Completed as Noted:

Justin Enwall  
Terracon Representative Signature

[REDACTED]  
Resident Signature



Street Address: 2421 E. 4<sup>th</sup> ST.

Name of Resident: [REDACTED]

Date and Time of Visit: 4-26-11 / 10:30

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

Concrete Floor

\_\_\_\_\_

\_\_\_\_\_

- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Justin Enard  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address:

2421 E 4th Street

Name of Resident:

[REDACTED]

## Arrival Checklist

Date of Visit: 4/26/11

Time of Arrival: 800

Time of Departure: 900

Names of Terracon Representatives: Justin Enwall

Rob Bergman

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling


☐ Other [Explain: ]

Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit:

Time of Follow-Up Visit:

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

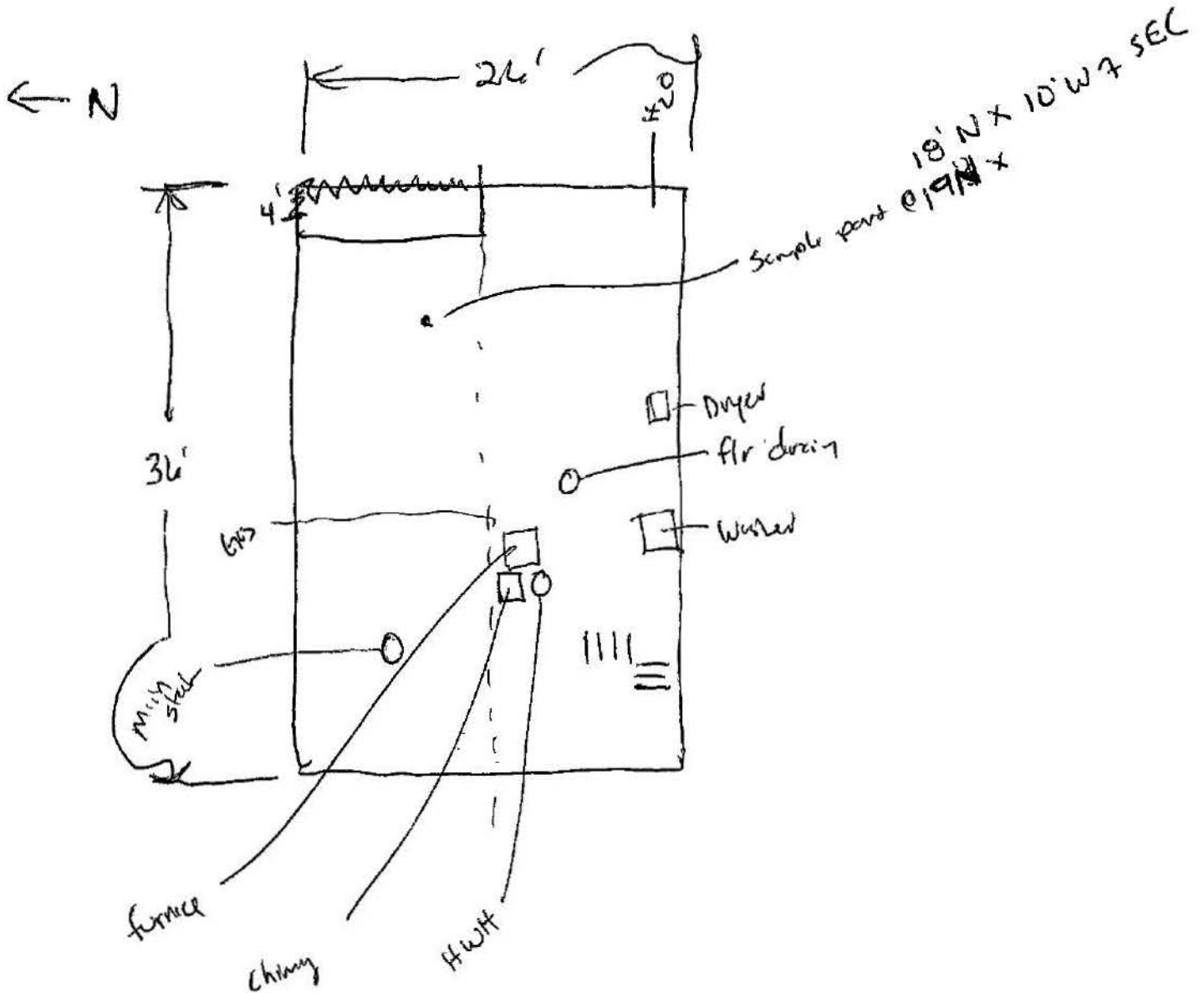
Residence ID:	47	Address:	2421 E 4th St
Sample ID:	SS-47	Location:	Waterloo, Iowa
Date:	4/28/11	Time:	800
Sampler(s):	JME/RPB	Summa Canister ID:	1320N
Flow Controller ID:	26	Flow Controller Rate Setting (cc/min):	200 cc/min
Start Time:	818	Finish Time:	900
Pre-Sampling Vacuum (in Hg):	-30	Post-Sampling Vacuum (in Hg):	-2
Organic Vapor Reading (ppm):	CL 0.2	PID used:	WAL miniRac 3000 #2 with a 106 eV lamp
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	parged 210 cc from SSMP with syringe and 10 cc from 1/2 flow controller		
Sketch:			

PROJECT: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

JOB NO. \_\_\_\_\_ Date 4-26-11 Comp. By JE/MA CHECKED BY: \_\_\_\_\_

2421 E 4th St.

- owner said drill any where



# Terracon

Street Address: 2427 E. 4th St. W. 100  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-25-11

Time of Arrival: 1:30 p. Time of Departure: 14:40

Names of Terracon Representatives: Mark Anderson  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☐ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_ Thurs 4/28 b/twn 11:30 - 1

Time of Follow-Up Visit: \_\_\_\_\_ ↳ try a couple of times

Items Completed as Noted:

Mark Anderson  
Terracon Representative Signature



# Terracon

Street Address: 2427 E. 4th St W 100

Name of Resident: [REDACTED]

Date and Time of Visit: 4-25-11 @ 1:30

## Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Mark Anderson  
Terracon Representative Signature

[REDACTED]

# Terracon

Street Address: 2427 E 4th St.

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/29/11

Time of Arrival: 1205

Time of Departure: 12:25

Names of Terracon Representatives: Justin Emnell  
Rob Bergman

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☒ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/11

Time of Follow-Up Visit: 12:00

Items Completed as Noted:

Justin Emnell

Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 2427 E 4th St.

Name of Resident: [REDACTED]

Date and Time of Visit: 1/20/11 12:05

## Indoor Air Sampling Canister Installation Checklist

- ☒ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.
- ☒ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.
- ☒ Explain precautions to be taken while the canister collects the samples.
- ☒ Arrange for visit to remove canister:

Date: 4/20/11

Time: 12:00

1213	29.25 in Hg	ZA-48-MF		
1218	29.5 in Hg	ZA-48-B	1495	K406
1218	29.0 in Hg	ZA-48-B-D	11157	K362

Items Completed as Noted:



Terracon Representative Signature



**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	48	Address:	2427 E 4th St
Sample ID:	IA-48-B	Location:	Waterloo, IA
Date:	4/28/11	Time:	12:05
Sampler(s):	RPB/JME	Summa Canister ID:	1495
Flow Controller ID:	K406	Flow Controller Rate Setting (cc/min):	24 hr.
Start Time:	12:18 4/28/11	Finish Time:	1522 4/29/11
Pre-Sampling Vacuum (in Hg):	29.5 in Hg	Post-Sampling Vacuum (in Hg):	-5
Organic Vapor Reading (ppm):	—	PID used:	No
Summa Canister went to Ambient?	Yes / <u>No</u>	Method:	Grab
Comments:	Placed canister on bench about chest high in center of room		
Sketch:			

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	48	Address:	2427 E 4th St
Sample ID:	IA-48-B-D	Location:	Waterloo, IA
Date:	4/28/11	Time:	12:05
Sampler(s):	RPB/JME	Summa Canister ID:	11157
Flow Controller ID:	K362	Flow Controller Rate Setting (cc/min):	24 hr.
Start Time:	12:18 4/28/11	Finish Time:	1522 4/28/11
Pre-Sampling Vacuum (in Hg):	29.0 in Hg	Post-Sampling Vacuum (in Hg):	-3
Organic Vapor Reading (ppm):	—	PID used:	No
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	Placed canister on bench about chest high in center of room.		
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020  
PROJECT LOCATION: Waterloo, IA  
DATE INSTALLED: 4/28/11  
TIME INSTALLED: 1218  
ADDRESS INSTALLED: 2427 E 4th St  
SAMPLE ID: IA-48-B  
SAMPLE LOCATION: Center of basement approximately  
3 1/2 ft above ground  
DEVICE #: 14495 CONTROLLER#: 11406  
LAB ID #:  
RETRIEVAL DATE: 4/29/11  
PLANNED RETRIEVAL TIME: 12:00  
ACTUAL RETRIEVAL TIME: 15:22  
TERRACON REPRESENTATIVE: JME/ALB

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722



**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	48	Address:	2427 E 4th st.
Sample ID:	IA-48-MF	Location:	Waterloo, IA
Date:	4/28/11	Time:	12:05
Sampler(s):	RPB/JME	Summa Canister ID:	0120
Flow Controller ID:	K270	Flow Controller Rate Setting (cc/min):	24 hr.
Start Time:	12:13	Finish Time:	15:25
Pre-Sampling Vacuum (in Hg):	29.25 in Hg	Post-Sampling Vacuum (in Hg):	-5
Organic Vapor Reading (ppm):	—	PID used:	No
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	Placed canister on bookshelf separating living room & dining room along N wall.		
Sketch:			

# **DO NOT TOUCH**

## **SAMPLE IN PROGRESS**

TERRACON PROJECT NUMBER: 07107020  
PROJECT LOCATION: Waterloo, MN  
DATE INSTALLED: 4/29/11  
TIME INSTALLED: \_\_\_\_\_  
ADDRESS INSTALLED: 2427 4th Street  
SAMPLE ID: IA-48-MF  
SAMPLE LOCATION: on top of bookcase built in  
bookcase in center of living room / into dining  
DEVICE #: 0120 CONTROLLER#: 1270  
LAB ID #: \_\_\_\_\_  
RETRIEVAL DATE: 4/29/11  
PLANNED RETRIEVAL TIME: \_\_\_\_\_  
ACTUAL RETRIEVAL TIME: 1525  
TERRACON REPRESENTATIVE: JPB/RPB

COMMENTS:

**Terracon**  
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702

870 40<sup>th</sup> Avenue  
Bettendorf, Iowa 52722

# Terracon

Street Address: 2427 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/24/2011

Time of Arrival: 1205

Time of Departure: 1530

Names of Terracon Representatives:

Jen Clancy

Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☒ Indoor Air Sampling Canister Removal ☒

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Jennifer Clancy  
Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	48	Address:	2427 E 4th St
Sample ID:	SS-48	Location:	Waterloo
Date:	4/29/2011	Time:	1205
Sampler(s):	jmc/jmc	Summa Canister ID:	1013
Flow Controller ID:	138	Flow Controller Rate Setting (cc/min):	
Start Time:	1215	Finish Time:	1250
Pre-Sampling Vacuum (in Hg):	-2.8	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):	ambient: 0.2 ppm SS: 0.2 ppm	PID used:	mini PAK 3000
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:			
Sketch:			

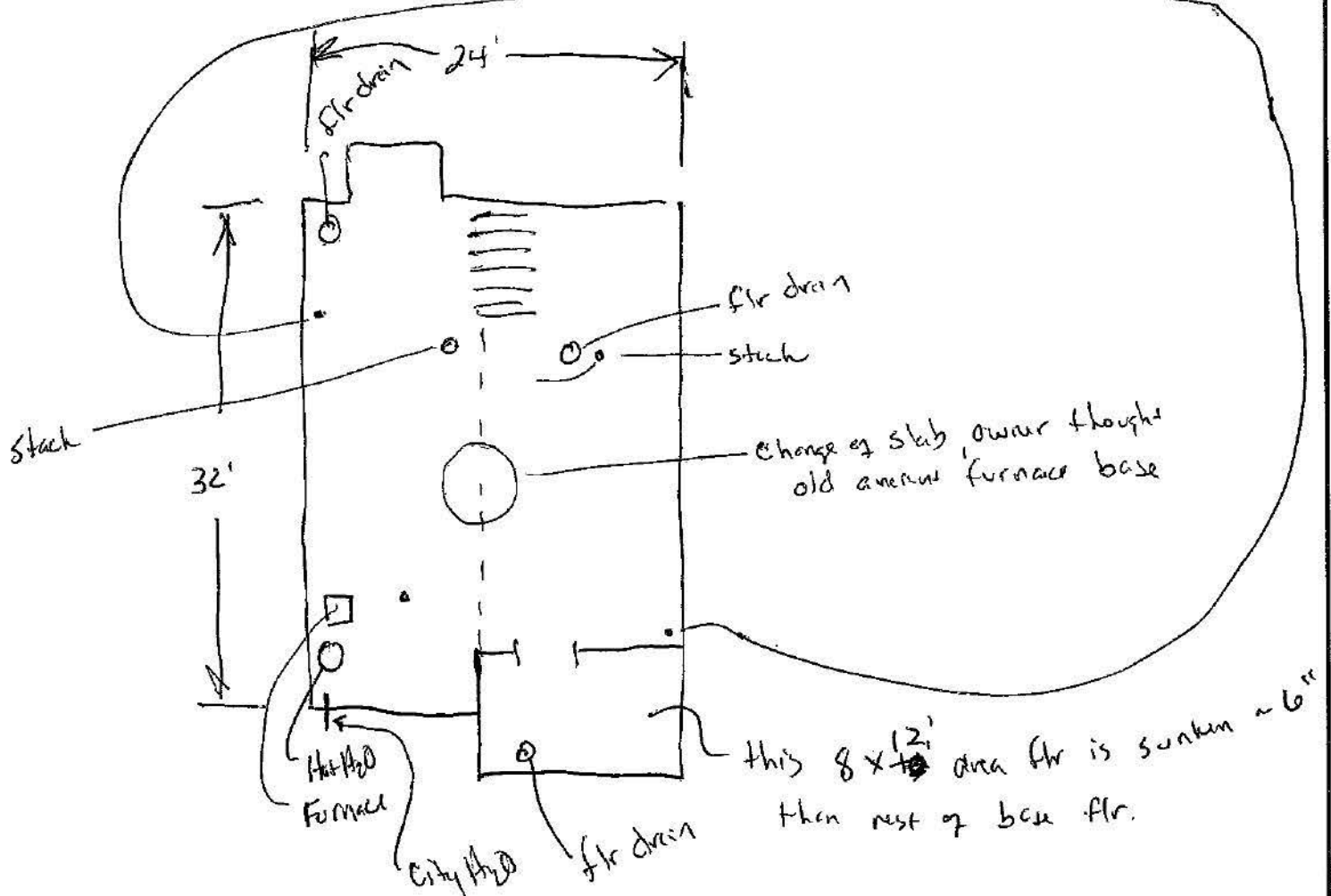
PROJECT: Chamberlain Manufacturing Corporation

Page 1 of 1

JOB NO. 07107020 Date 4-25-11 Comp. By JE/MA CHECKED BY: \_\_\_\_\_

2427 E. 4th St., Waterloo, IA  
24" (N-S) x 32' → 40'

- Sampling port @ 9'W x 10'N of SEL
- ancient/damaged painted concrete flr
- old ~~(EPA?)~~ (previously installed sampling pt. @ 2'N. x 10'E of SWC & 2'S x 10'W of NEC



N →

- @ location drilled/sampled concrete slab only ~1-2" thick.

# Terracon

Street Address: 2600 E. 4th St.  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4-25-11

Time of Arrival: 3:30 p. Time of Departure: 4:25 p

Names of Terracon Representatives: Mark Anderson  
Justin Edwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☐ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

☐ Indoor Air Sampling Canister  
Installation

☐ Indoor Air Sampling Canister  
Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4-28-11 (th).

Time of Follow-Up Visit: 10:00 , Brother = Andrew

Items Completed as Noted:

Mark Anderson

Terracon Representative Signature

[REDACTED]





Street Address: 2600 E. 4th St  
Name of Resident: [REDACTED]  
Date and Time of Visit: 4-25-11 @ 3:30p

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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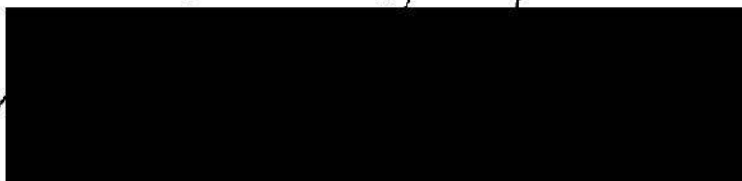
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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Mark Anderson  
Terracon Representative Signature



# Terracon

Street Address: 2600 E 4th Street  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1005 Time of Departure: 1100

Names of Terracon Representatives: Justin Emery II  
Rob Bergman

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

\_\_\_\_\_  
Resident Signature

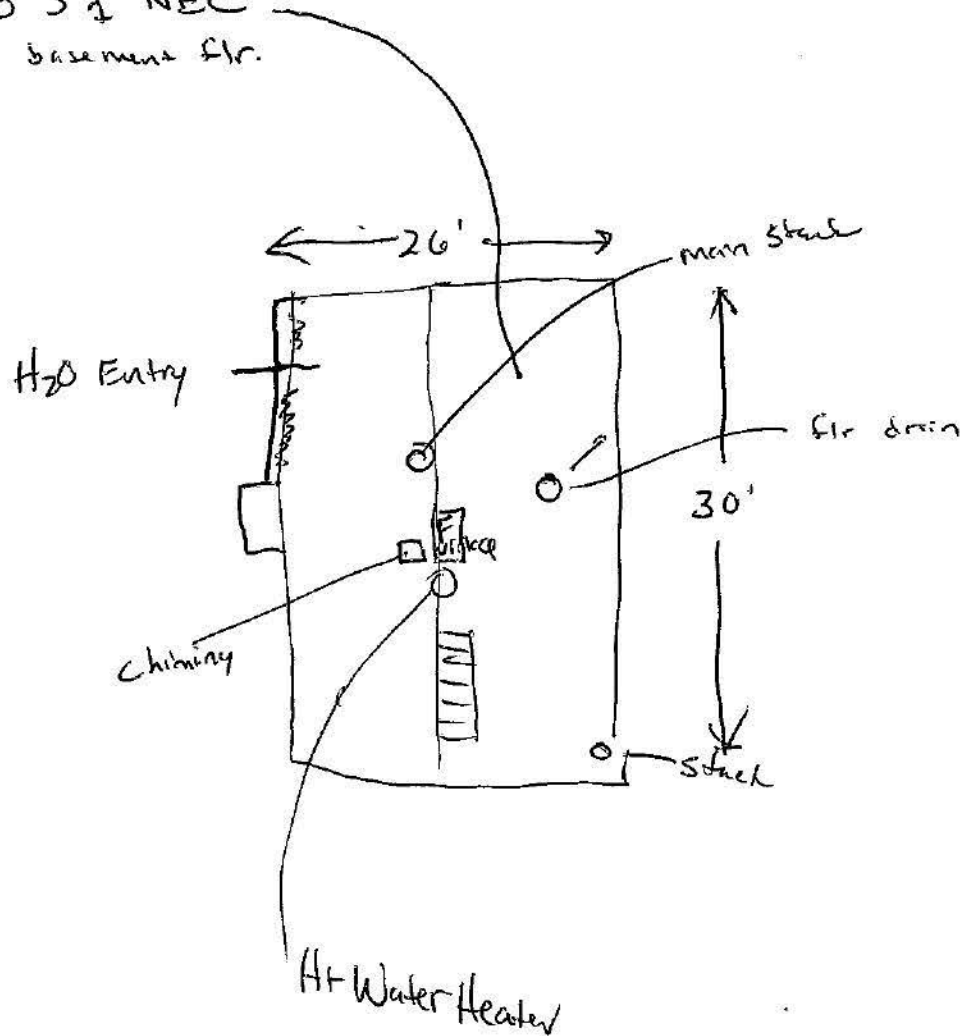
**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	56	Address:	2600 4 <sup>th</sup> Street
Sample ID:	55-56	Location:	Waterloo, IA
Date:	4/28/11	Time:	1005
Sampler(s):	JAE/RPB	Summa Canister ID:	6349
Flow Controller ID:	142	Flow Controller Rate Setting (cc/min):	200 cc/min
Start Time:	1013	Finish Time:	1057
Pre-Sampling Vacuum (in Hg):	28.5 in Hg	Post-Sampling Vacuum (in Hg):	1.0 - 1.25 in Hg
Organic Vapor Reading (ppm):	<1 (0.4)	PID used:	miniRae 3000 #2 with 10.6 eV lamp
Summa Canister went to Ambient?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Method:	Grab
Comments:	Purged 200 cc from SSMP with syringe and <del>to</del> ~10 cc from flow controller, basement ambient 0.6 ppm		
Sketch:	- appeared to stop drawing at 1-1.25 in Hg, stopped sample		
See Detailed Sketch			

PROJECT: Chamblin Manufacturing ~~Energy~~ Corporation Page 1 of 3  
 JOB NO. 07107020 Date 4-25-11 Comp. By JE / MA CHECKED BY: \_\_\_\_\_

- 2600 E. 4<sup>th</sup> ST., W'loo
- pt. 9' W x 8' S ± NEC
- printed concrete basement flr.



# Terracon

Street Address: 2614 E. 4<sup>th</sup> ST.

Name of Resident: \_\_\_\_\_

## Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 8:30

Time of Departure: 9:20

Names of Terracon Representatives: Justin Enwall

Mark Anderson

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

\_\_\_\_ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation

\_\_\_\_ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire

\_\_\_\_ Indoor Air Sampling Canister  
Installation

\_\_\_\_ Indoor Air Sampling Canister  
Removal

\_\_\_\_ Outdoor Air Sampling

\_\_\_\_ Other [Explain: \_\_\_\_\_]

\_\_\_\_ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4-28-11 (Thurs)

Time of Follow-Up Visit: 11:00

Items Completed as Noted:

Mark Anderson

Terracon Representative Signature

\_\_\_\_\_  
Resident Signature

# Terracon

Street Address: 2614 E. 4<sup>th</sup> ST.

Name of Resident: [REDACTED]

Date and Time of Visit: \_\_\_\_\_

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Mark Anderson  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 204 E 4th Street  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1105 Time of Departure: 1200

Names of Terracon Representatives: Justin Enwall  
Rob Bergman

- ☒ Introduce Terracon Representatives and Show Terracon Identification
- ☒ Verify identity of resident; confirm authority to allow entry
- ☒ Explain purpose of visit (check as appropriate):
- |   |  |
|---|--|
| <input type="checkbox"/> Sample Port Installation             | <input checked="" type="checkbox"/> Sub-Slap Vapor Sampling        |
| <input type="checkbox"/> Completion of Questionnaire          | <input type="checkbox"/> Indoor Air Sampling Canister Installation |
| <input type="checkbox"/> Indoor Air Sampling Canister Removal | <input type="checkbox"/> Outdoor Air Sampling                      |
| <input type="checkbox"/> Other [Explain: _____]               |  |
- ☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

[REDACTED]  
Resident Signature



VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

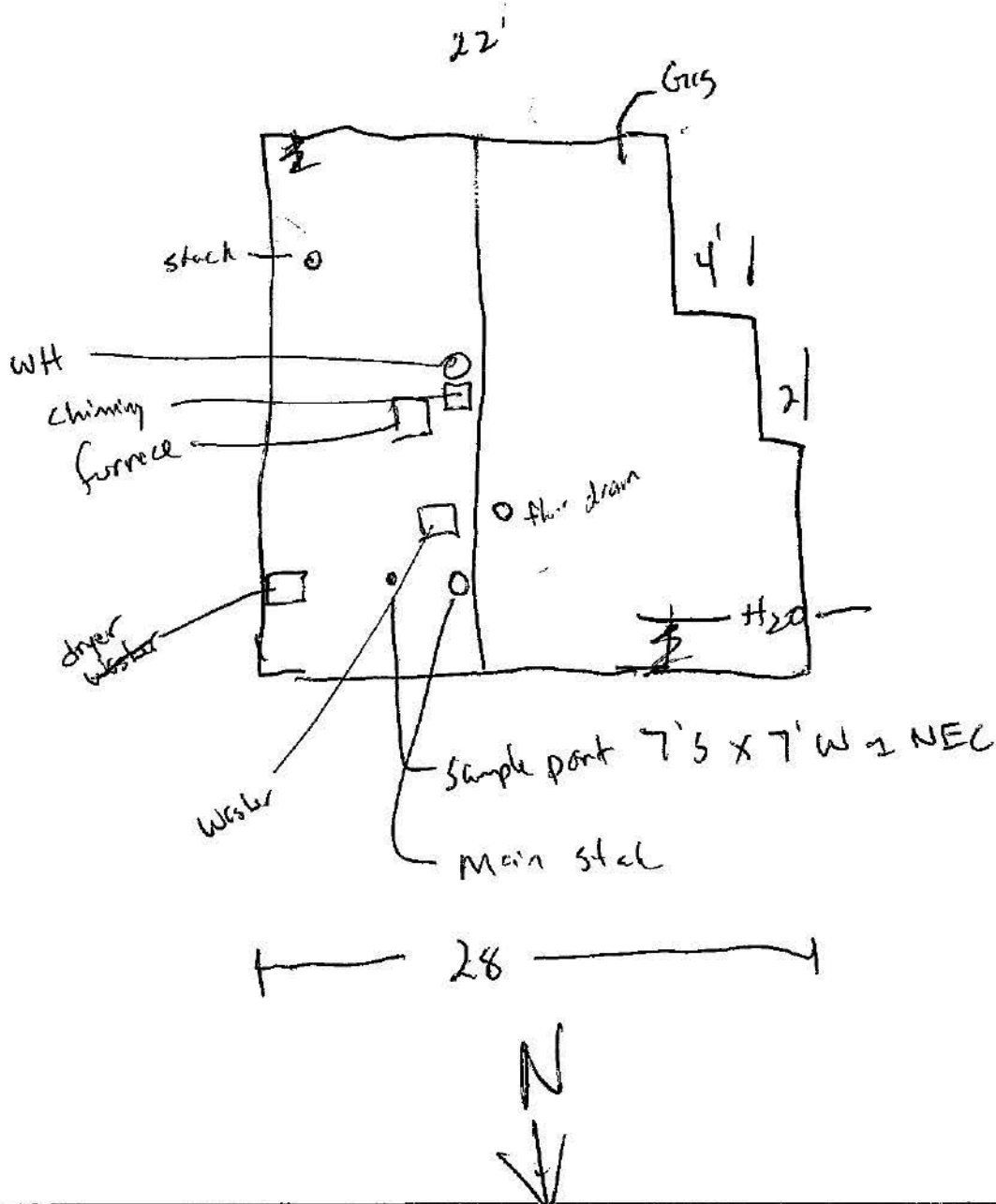
Residence ID:	60	Address:	2614 E 4th St
Sample ID:	SS-60	Location:	Waterloo, IA
Date:	4/26/11	Time:	<del>1105</del> 1105
Sampler(s):	JME/APB	Summa Canister ID:	93219
Flow Controller ID:	82	Flow Controller Rate Setting (cc/min):	200 cc/min
Start Time:	1115	Finish Time:	1152
Pre-Sampling Vacuum (in Hg):	-27.5 in Hg	Post-Sampling Vacuum (in Hg):	-1
Organic Vapor Reading (ppm):	41 0.1 ppm	PID used:	WBL miniRac 3000 #2 with 10.6 eV lamp
Summa Canister went to Ambient?	Yes / <input checked="" type="radio"/> No	Method:	Grab
Comments:	purged 200 cc from ssmp with syringe and ~10 cc from flow controller with syringe, ambient background basement 0.4 ppm		
Sketch:	See Detailed Sketch		

PROJECT: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

JOB NO. 07107020 Date 4-26-11 Comp. By JE/MA CHECKED BY: \_\_\_\_\_

2614 E. 4<sup>th</sup> ST., W'100, 8:30

\* Need Data \*  
Location



# Terracon

Street Address: 2620 E 4th Street  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/27/11

Time of Arrival: 1600 Time of Departure: 1700

Names of Terracon Representatives: Justin Enwall  
Mark Anderson

- ☒ Introduce Terracon Representatives and Show Terracon Identification
- ☒ Verify identity of resident; confirm authority to allow entry
- ☒ Explain purpose of visit (check as appropriate):
  - ☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling
  - ☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation
  - ☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling
  - ☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11

Time of Follow-Up Visit: 3:30 PM

Items Completed as Noted:

[Signature]  
Terracon Representative Signature

# Terracon

Street Address: 2620 E 4th Street  
Name of Resident: [REDACTED]  
Date and Time of Visit: 4/27/11 4:00 PM

## Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:



Terracon Representative Signature

  
Resident Signature

# Terracon

Street Address: 7107 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 5/2/2021

Time of Arrival: 1545 Time of Departure: 1640

Names of Terracon Representatives: Janclancy  
Justin Enwall

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

Janclancy  
Terracon Representative Signature

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	62	Address:	2020 E 4th St
Sample ID:	SS-62	Location:	Waterloo
Date:	5/2/2011	Time:	7545
Sampler(s):	one / one	Summa Canister ID:	04399
Flow Controller ID:	74	Flow Controller Rate Setting (cc/min):	2A
Start Time:	1600	Finish Time:	1634
Pre-Sampling Vacuum (in Hg):	-29	Post-Sampling Vacuum (in Hg):	-1.5
Organic Vapor Reading (ppm):	ambient. 00 SS: 0-0	PID used:	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	Method:	TD-15 Grab
Comments:			

**Sketch:**

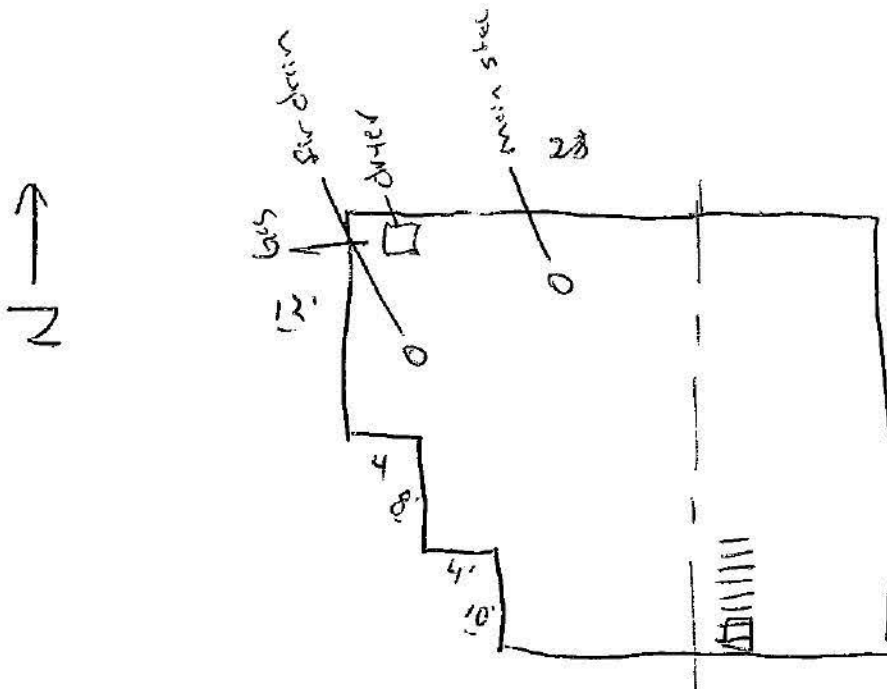
N  
↑

op = port  
W = H<sub>2</sub>O heater  
F = furnace  
C = chimney  
⊙ = drain

PROJECT: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

JOB NO. \_\_\_\_\_ Date 4-27-11 Comp. By \_\_\_\_\_ CHECKED BY: \_\_\_\_\_

2620 E 4<sup>th</sup> ST.





# Terracon

Street Address: 2135 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 130 Time of Departure: 210

Names of Terracon Representatives: John Brimeyer  
Jen Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation ☐ Sub-Slab Vapor Sampling

☒ Completion of Questionnaire ☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal ☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3

Time of Follow-Up Visit: 100

Items Completed as Noted:

Jen Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature



Street Address: 2636 E 4th St

Name of Resident: [REDACTED]

Date and Time of Visit: 4/28/2011

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

# Terracon

Street Address: 2635 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 5/4/2011

Time of Arrival: 1200 Time of Departure: 1315

Names of Terracon Representatives: Jen Clancy  
Dave Clancy

☐ Introduce Terracon Representatives and Show Terracon Identification

☐ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☒ Sub-Slab Vapor Sampling x2

☐ Completion of Questionnaire

☐ Indoor Air Sampling Canister Installation

☐ Indoor Air Sampling Canister Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

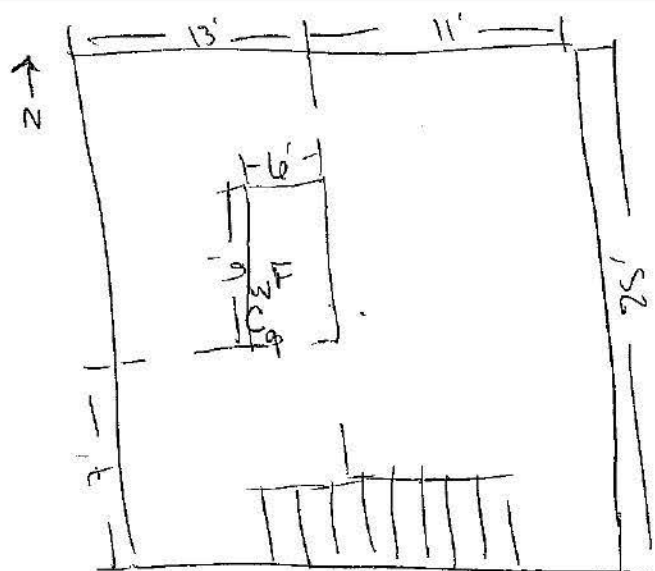
Jen Clancy  
Terracon Representative Signature

[REDACTED]  
Resident Signature

*wants letter w/ results*

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	67	Address:	2635 E 4th St
Sample ID:	SS-67	Location:	Waterloo
Date:	5/4/2011	Time:	1200
Sampler(s):	jmc / dcc	Summa Canister ID:	7772
Flow Controller ID:	83	Flow Controller Rate Setting (cc/min):	
Start Time:	1227	Finish Time:	1305
Pre-Sampling Vacuum (in Hg):	-28.5	Post-Sampling Vacuum (in Hg):	-2.5
Organic Vapor Reading (ppm):	ambient: 0.1 86: 0.0	PID used:	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	Method:	TO 15 Grab
Comments:			
Sketch:	 <p style="position: absolute; top: 620px; left: 750px;">Furnace W-H<sub>2</sub>O heater C=Chimney Sp=port</p>		

**VAPOR INTRUSION CHARACTERIZATION WORK PLAN  
CHAMBERLAIN MANUFACTURING CORPORATION  
FORMER FACILITY AT  
550 ESTHER STREET  
WATERLOO, IOWA**

**Soil Vapor/Indoor Air Sampling Information Form**

Residence ID:	67	Address:	2635 E 4th St
Sample ID:	SSD-67	Location:	Waterloo
Date:	5/4/2011	Time:	1200
Sampler(s):	jmc ldec	Summa Canister ID:	66669
Flow Controller ID:	02	Flow Controller Rate Setting (cc/min):	
Start Time:	1227	Finish Time:	1305
Pre-Sampling Vacuum (in Hg):	2-30	Post-Sampling Vacuum (in Hg):	-4
Organic Vapor Reading (ppm):		PID used:	
Summa Canister went to Ambient?	Yes / No	Method:	TO-15 Grab
Comments:			
Sketch:			

# Terracon

Street Address: 2646 E 4th St  
Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 3:30pm Time of Departure: \_\_\_\_\_

Names of Terracon Representatives: John Brumeyer  
Jim Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☒ Sample Port Installation \_\_\_\_\_ Sub-Slab Vapor Sampling

\_\_\_\_\_ Completion of Questionnaire \_\_\_\_\_ Indoor Air Sampling Canister Installation

\_\_\_\_\_ Indoor Air Sampling Canister Removal \_\_\_\_\_ Outdoor Air Sampling

\_\_\_\_\_ Other [Explain: \_\_\_\_\_]

☒ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28 & 4/29

Time of Follow-Up Visit: 9:00 & 5:00

Items Completed as Noted:

John Brumeyer  
Terracon Representative Signature

[REDACTED]  
Resident Signature

# Terracon

Street Address: 2646 E 4th St

Name of Resident: [REDACTED]

## Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 5:30

Time of Departure: \_\_\_\_\_

Names of Terracon Representatives:

John Brumeyer  
Jen Clancy

☒ Introduce Terracon Representatives and Show Terracon Identification

☒ Verify identity of resident; confirm authority to allow entry

☒ Explain purpose of visit (check as appropriate):

☐ Sample Port Installation

☐ Sub-Slab Vapor Sampling

☐ Completion of Questionnaire

☒ Indoor Air Sampling Canister  
Installation

☐ Indoor Air Sampling Canister  
Removal

☐ Outdoor Air Sampling

☐ Other [Explain: \_\_\_\_\_]

☐ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: \_\_\_\_\_

Time of Follow-Up Visit: \_\_\_\_\_

Items Completed as Noted:

No one home at  
time of arrival,  
4/28/11  
Jme

Terracon Representative Signature

Resident Signature





Street Address: 2646 E 4th St

Name of Resident: [REDACTED]

Date and Time of Visit: 4/25/2011 3:30pm

### Sampling Port Installation Checklist

- ☒ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

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- ☒ Install sampling port in accordance with work plan procedures.
- ☒ Clean up any debris.
- ☒ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

  
Terracon Representative Signature

  
Resident Signature

**Appendix F**

**Photographs**

**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #1** 322 East Arlington – Sample Port



**Photo #2** 322 East Arlington - General Area



**Photo #3** 401 East Arlington ID – Sample Port



**Photo #4** 401 East Arlington ID - General Area



**Photo #5** 211 Boston Avenue– Sample Port



**Photo #6** 211 Boston Avenue - General Area



**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #7** 216 Boston Avenue – Sample Port



**Photo #8** 216 Boston Avenue - General Area



**Photo #9** 223 Boston Avenue – Sample Port



**Photo #10** 223 Boston Avenue - General Area



**Photo #11** 227 Boston Avenue – Sample Port



**Photo #12** 227 Boston Avenue - General Area



**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



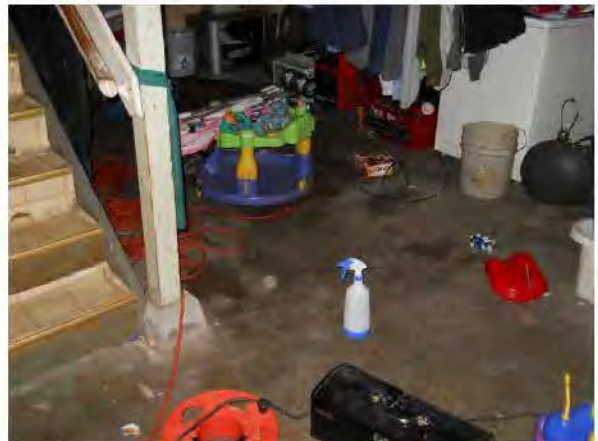
**Photo #13** 236 Boston Avenue – Sample Port



**Photo #14** 236 Boston Avenue - General Area



**Photo #15** 239 Boston Avenue – Sample Port



**Photo #16** 239 Boston Avenue - General Area



**Photo #17** 240 Boston Avenue – Sample Port



**Photo #18** 240 Boston Avenue - General Area



**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #19** 302 Boston Avenue – Sample Port



**Photo #20** 302 Boston Avenue - General Area



**Photo #21** 326 Boston Avenue – Sample Port



**Photo #22** 326 Boston Avenue - General Area



**Photo #23** 2221 East 4<sup>th</sup> – Sample Port



**Photo #24** 2221 East 4<sup>th</sup> - General Area



**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #25** 2227 East 4<sup>th</sup> – Sample Port



**Photo #26** 2227 East 4<sup>th</sup> - General Area



**Photo #27** 2233 East 4<sup>th</sup> – Sample Port



**Photo #28** 2233 East 4<sup>th</sup> - General Area



**Photo #29** 2237 East 4<sup>th</sup> – Sample Port



**Photo #30** 2237 East 4<sup>th</sup> - General Area



**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #31** 2413 East 4<sup>th</sup> – Sample Port



**Photo #32** 2413 East 4<sup>th</sup> - General Area



**Photo #33** 2417 East 4<sup>th</sup> – Sample Port



**Photo #34** 2417 East 4<sup>th</sup> - General Area



**Photo #35** 2421 East 4<sup>th</sup> – Sample Port



**Photo #36** 2421 East 4<sup>th</sup> - General Area

**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #37** 2427 East 4<sup>th</sup> – Sample Port



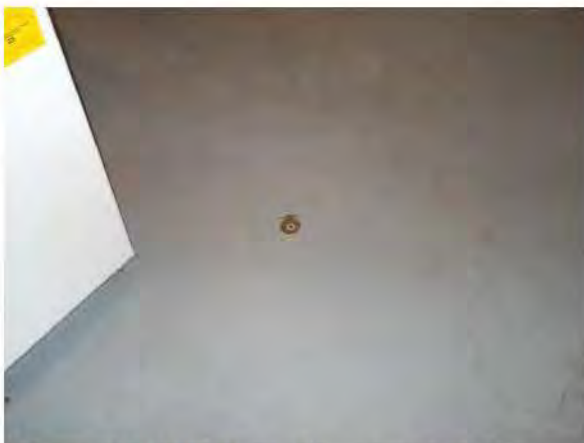
**Photo #38** 2427 East 4<sup>th</sup> - General Area



**Photo #39** 2600 East 4<sup>th</sup> – Sample Port



**Photo #40** 2600 East 4<sup>th</sup> - General Area



**Photo #41** 2614 East 4<sup>th</sup> – Sample Port



**Photo #42** 2614 East 4<sup>th</sup> - General Area



**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #43** 2620 East 4<sup>th</sup> – Sample Port



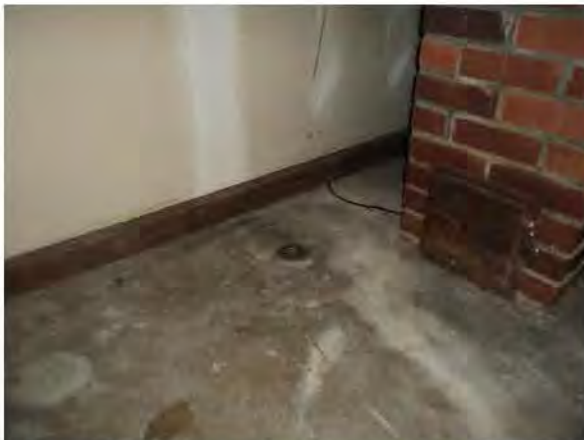
**Photo #44** 2620 East 4<sup>th</sup> - General Area



**Photo #45** 2635 East 4<sup>th</sup> – Sample Port



**Photo #46** 2635 East 4<sup>th</sup> - General Area



**Photo #47** 2646 East 4<sup>th</sup> – Sample Port



**Photo #48** 2646 East 4<sup>th</sup> - General Area

**Terracon Project No. 07107020**  
**Vapor Intrusion Characterization Report**  
**Sample Port Installation – April 25<sup>th</sup> – April 29<sup>th</sup>, 2011**



**Photo #49** Collection of Sub-Slab sample



**Photo #50** Sub-Slab duplicate sampling



**Photo #51** Indoor Air sampling



**Photo #52** Equipment Blank sampling

**Appendix G**

**Laboratory Analytical Results**



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

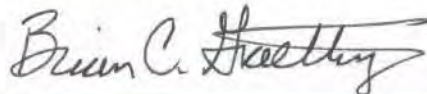
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: 800-750-2401

TestAmerica Job ID: CUD1690  
Client Project/Site: Chamberlain Vapor Sampling  
Client Project Description: TO-15 Scans

For:  
TERRACON - BETTENDORF  
870 40th Avenue  
Bettendorf, IA 52722

Attn: John Brimeyer



Authorized for release by:  
05/11/2011 03:01:30 PM

Brian C. Graettinger  
Operations Manager  
brian.graettinger@testamericainc.com

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

## Case Narrative

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1690

---

**Job ID: CUD1690**

---

**Laboratory: TestAmerica Cedar Falls**

**Narrative**

---

**Analyzed by TestAmerica - Knoxville, TN.**

1

2

3

4

5

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7



## Sample Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1690

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUD1690-01	SS-17	Air	04/28/11 11:45	04/28/11 18:00
CUD1690-02	SSD-17	Air	04/28/11 12:16	04/28/11 18:00
CUD1690-03	SS-22	Air	04/28/11 15:50	04/28/11 18:00
CUD1690-04	SS-13	Air	04/28/11 17:15	04/28/11 18:00

# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1690

**Client Sample ID: SS-17**

Date Collected: 04/28/11 11:45

Date Received: 04/28/11 18:00

**Lab Sample ID: CUD1690-01**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

**Client Sample ID: SSD-17**

Date Collected: 04/28/11 12:16

Date Received: 04/28/11 18:00

**Lab Sample ID: CUD1690-02**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

**Client Sample ID: SS-22**

Date Collected: 04/28/11 15:50

Date Received: 04/28/11 18:00

**Lab Sample ID: CUD1690-03**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

**Client Sample ID: SS-13**

Date Collected: 04/28/11 17:15

Date Received: 04/28/11 18:00

**Lab Sample ID: CUD1690-04**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

<b>H1E030523 Analytical Report.....</b>	<b>1</b>
<b>Sample Receipt Documentation .....</b>	<b>11</b>
<b>Total Number of Pages .....</b>	<b>15</b>

## ANALYTICAL REPORT

PROJECT NO. CUD1690

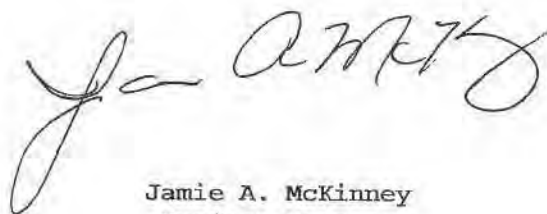
Terracon

Lot #: HLE030523

Brian Graettinger

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney  
Project Manager

May 9, 2011

## ANALYTICAL METHODS SUMMARY

HLE030523

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Volatile Organics by TO15	EPA-2 TO-15

### References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

**SAMPLE SUMMARY**

HLE030523

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MHTR8	001	CUD1690-01	04/28/11	11:45
MHTTF	002	CUD1690-02	04/28/11	12:16
MHTTG	003	CUD1690-03	04/28/11	15:50
MHTTJ	004	CUD1690-04	04/28/11	17:15

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



## PROJECT NARRATIVE

### H1E030523

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**The original chain of custody documentation is included with this report.**

#### Sample Receipt

There were no problems with the condition of the samples received.

#### Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

TestAmerica Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Lab #88-0688, California DHS ELAP Cert. #2423, Colorado DPHE, Connecticut DPH Lab #PH-0223, Florida DOH Lab #E87177, Georgia DNR Lab #906, Hawaii DOH, Illinois EPA Lab #200012, Indiana DOH Lab #C-TN-02, Iowa DNR Lab #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH, Maryland DOE Cert. #277, Michigan DEQ Lab #9933, Nevada DEP, New Jersey DEP Lab #TN001, New York DOH Lab #10781, North Carolina DPH Lab #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Lab #CL0059, Oklahoma DEQ Lab #9415, Pennsylvania DEP Lab #68-00576, South Carolina DHEC Cert #84001001, Tennessee DOH Lab #02014, Texas CEQ, Utah DOH Lab # QUAN3, Virginia DGS Lab #00165, Washington DOE Lab #C1314, West Virginia DEP Cert. #345, West Virginia DHHR Cert #9955C, Wisconsin DNR Lab #998044300, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.



TestAmerica Cedar Falls  
Client Sample ID: CUD1690-01  
GC/MS Volatiles

Lot-Sample # H1E030523 - 001 Work Order # MHTR81AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
Prep Batch #....: 1125185 Analysis Time....: 19:49  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.027 J	0.080	0.012	0.15 J	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.16	0.080	0.016	1.1	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	99	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUD1690-02  
 GC/MS Volatiles

Lot-Sample # H1E030523 - 002 Work Order # MHTTF1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 20:42  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.21	0.080	0.016	1.4	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.023 J	0.040	0.014	0.12 J	0.21	0.075
1,1,1-Trichloroethane	0.034 J	0.080	0.012	0.18 J	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14\_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
Client Sample ID: CUD1690-03  
GC/MS Volatiles

Lot-Sample # H1E030523 - 003 Work Order # MHTTG1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
Prep Batch #....: 1125185 Analysis Time....: 21:34  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	0.092	0.080	0.024	0.37	0.32	0.095
1,1-Dichloroethene	0.063 J	0.080	0.013	0.25 J	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	0.095	0.080	0.010	0.38	0.32	0.040
1,1,1-Trichloroethane	0.55	0.080	0.012	3.0	0.44	0.065
Trichloroethene	4.6	0.040	0.014	25	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	1.9	0.080	0.016	13	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14\_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUD1690-04  
 GC/MS Volatiles

Lot-Sample # H1E030523 - 004 Work Order # MHTTJ1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 22:27  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.25	0.080	0.016	1.7	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.018 J	0.040	0.014	0.096 J	0.21	0.075
1,1,1-Trichloroethane	0.056 J	0.080	0.012	0.31 J	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: INTRA-LAB BLANK  
 GC/MS Volatiles

Lot-Sample # H1E050000 - 185B Work Order # MHXQT1AE Matrix.....: AIR

Prep Date.....: 04/28/2011 Date Received.: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #.....: 1125185 Analysis Time....: 13:33  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	100	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5,002 02/07/2011



TestAmerica Cedar Falls  
 Client Sample ID: CHECK SAMPLE  
 GC/MS Volatiles

Lot-Sample # H1E050000 - 185C Work Order # MHXQT1AF Matrix.....: AIR

Prep Date.....: 04/28/2011 Date Received..: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #.....: 1125185 Analysis Time....: 11:41  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
1,1,2-Trichloroethane	5.00	5.52	27.3	30.1	110	70 - 130
trans-1,2-Dichloroethene	5.00	5.54	19.8	22.0	111	70 - 130
Tetrachloroethene	5.00	5.25	33.9	35.6	105	70 - 130
1,1,1-Trichloroethane	5.00	5.55	27.3	30.3	111	70 - 130
Trichloroethene	5.00	5.35	26.9	28.8	107	70 - 130
cis-1,2-Dichloroethene	5.00	5.51	19.8	21.8	110	70 - 130
1,1-Dichloroethene	5.00	5.57	19.8	22.1	111	70 - 130
Vinyl chloride	5.00	5.33	12.8	13.6	107	70 - 130
1,1-Dichloroethane	5.00	5.53	20.2	22.4	111	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_BOD.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls

CUD1690

SENDING LABORATORY:

TestAmerica Cedar Falls  
 704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone: 800-750-2401  
 Fax: 319-277-2425  
 Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville  
 5815 Middlebrook Pike  
 Knoxville, TN 37921  
 Phone: (865) 291-3000  
 Fax: -

TestAmerica OR#:

*Intercompany*

Analysis	Due	Expires	Comments
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Sample ID: CUD1690-01	Air	Sampled: 04/28/11 11:45	Air Volume (in L): 6631
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AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 11:45
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 11:45
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 11:45

Sample ID: CUD1690-02	Air	Sampled: 04/28/11 12:16	Air Volume (in L): 1536
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AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 12:16
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 12:16
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 12:16

Sample ID: CUD1690-03	Air	Sampled: 04/28/11 15:50	Air Volume (in L): 6578
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AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 15:50
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 15:50
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 15:50

Sample ID: CUD1690-04	Air	Sampled: 04/28/11 17:15	Air Volume (in L): 62342N
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AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 17:15
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 17:15
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 17:15

Released By

Date

Received By

Date

Released By

Date

Received By

Date

# TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

411030523

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: JOHN BRIMEYER		Sampled By: jfb/jmc		of COCs	
Company: TERRACON		Phone: 563.355.0702; jfb@brimeyer@terracon.com					
Address: 870 40th AVE		Site Contact:					
City/State/Zip: KEITENDORF, IA 52722		TAL Contact:					
Phone: 563.355.0702							
FAX: 563.355.4789							
Project Name: CHAMBERLAIN VAPOR SAMPLING		Analysis Turnaround Time					
Site/location: WATERLOO, IA		Standard (Specify)					
PO #		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 LOW UNIT	TO-14A	EPA 3C	EPA 25C	ASTM D-1945	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-17	4/28	1115	1145	-28.5	-4		10631	X											
SSD-17	↓	1144	1214	-28	-3		1530	↓											
SS-22	↓	1508	1550	-30	-3.8		6578	↓											
SS-13	↓	1637	1715	-28.5	-2.5		42342N	↓											

Sampled by: John Brimeyer Jennifer Clancey	Temperature (Fahrenheit)		1 Box Recovered @ Ambient 20°C Custody seals intact Fed Ex: 420821077057 4 Cans 4 Flows 3 CBA 5/3/11	
	Interior	Ambient		
	Start	72°F		45.50°F
	Stop			
	Pressure (Inches of Hg)			
	Interior	Ambient		
	Start			
	Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Jennifer Clancey	Date/Time: 4/28/2011 1800	Received by: [Signature] 5/3/11 1055
Relinquished by: [Signature]	Date/Time: 4/28/11 18:02	Received by:



H1E03DS23

TestAmerica

704 ENTERPRISE DRIVE • CEDAR RAPIDS, IA 50603  
800-736-2400 • 319-377-5422 FAX

THE LEADER IN ENVIRONMENTAL TESTING

## IH Sample Receipt Form

Client: Terracon Project: Chamber/airCity: BethendorfDate: 4/28/11 Receiver's Initials: SH Time (Delivered): 18:00COC Completed Correctly? ☒ Yes ☐ No  
(Cite inconsistencies below)Sample Checklist (Check indicates conformance failure) Couriers

Received Broken	Information Missing
Improper Media	Missing Sample
Missing Label	Sample Past Hold Date
Temperature	Extra Sample
COC Discrepancy	Insufficient Sample Volume
Other:	

<input type="checkbox"/> UPS	<input type="checkbox"/> TA Courier
<input type="checkbox"/> FedEx	<input type="checkbox"/> TA Field Services
<input type="checkbox"/> DHL	<input checked="" type="checkbox"/> Client
<input type="checkbox"/> USPS	<input type="checkbox"/> Other
<input type="checkbox"/> Speed-Dee	

☒ Samples Not Received in a Cooler  
☒ Temperature Not Taken
Reviewed By BCG Date 4/29/11

Comments

Remarks/Action Taken:

Initial/Date:

# TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: HFE030523

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 1a Do not match COC <input type="checkbox"/> 1b Incomplete information <input type="checkbox"/> 1c Marking smeared <input type="checkbox"/> 1d Label torn <input type="checkbox"/> 1e No label <input type="checkbox"/> 1f COC not received <input type="checkbox"/> 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)			<input checked="" type="checkbox"/>	<input type="checkbox"/> 2a Temp Blank = <input type="checkbox"/> 2b Cooler Temp = <input type="checkbox"/> 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 4a Not present <input type="checkbox"/> 4b Not intact <input type="checkbox"/> 4c Other:	
5. Were all of the samples listed on the COC received?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 5a Samples received-not on COC <input type="checkbox"/> 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 6a Leaking <input type="checkbox"/> 6b Broken	
7. Were VOA samples received without headspace?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 8a Improper container	
9. Did you check for residual chlorine, if necessary?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			<input checked="" type="checkbox"/>	<input type="checkbox"/> Incomplete information	
12. For 1613B water samples is pH<9?			<input checked="" type="checkbox"/>	If no, was pH adjusted to pH 7 - 9 with sulfuric acid?	
13. Are the shipping containers intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 13a Leaking <input type="checkbox"/> 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 14a Not relinquished	
15. Are tests/parameters listed for each sample?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
16. Is the matrix of the samples noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
17. Is the date/time of sample collection noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
18. Is the client and project name/# identified?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
19. Was the sampler identified on the COC?	<input checked="" type="checkbox"/>				

Quote #: 57209 PM Instructions: NA

Sample Receiving Associate:

*[Signature]*

Date: 5/3/11

QA026R22.doc, 012811

# Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: H1E030523

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DDF 5-3-11	NA	2896	MHTR8	6631	-3.7													9196
↓	↓	↓	MHTTF	1536	-3.3													↓
↓	↓	↓	MHTTG	6578	-1.9													9173
↓	↓	↓	MHTTJ	62342N	-2.4													9183



## Certification Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1690

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Cedar Falls		AIHA		101044
TestAmerica Cedar Falls	Illinois	NELAC	5	200024
TestAmerica Cedar Falls	Iowa	State Program	7	7
TestAmerica Cedar Falls	Kansas	NELAC	7	E-10341
TestAmerica Cedar Falls	Minnesota	NELAC	5	019-999-319
TestAmerica Cedar Falls	North Dakota	State Program	8	R-186
TestAmerica Cedar Falls	Oregon	NELAC	10	IA100001
TestAmerica Cedar Falls	Wisconsin	State Program	5	999917270

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

## Qualifier Definition/Glossary

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
$\alpha$	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.



## Method Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1690

Method	Method Description	Protocol	Laboratory
EPA TO-15	Air Sample Analysis - Subcontract		TAL CF

### Protocol References:

### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL 800-750-2401

**TAL Knoxville**

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information				Project Manager: <u>JOHN BRIMEYER</u>				Sampled By: <u>jfb/jmc</u>				of <u>    </u> COCs			
Company: <u>TERRACON</u>				Phone: <u>623.355.0702</u> ; <u>jfb@brimeyerterricon.com</u>											
Address: <u>870 40th AVE</u>				Site Contact:											
City/State/Zip: <u>BRITTON, IA 52722</u>				TAL Contact:											
Phone: <u>623.355.0702</u>															
FAX: <u>623.355.4789</u>															
Project Name: <u>CHAMBERLAIN VAPOR SAMPLING</u>				Analysis Turnaround Time											
Site/location: <u>WATERLOO, IA</u>				Standard (Specify)											
PO #				Rush (Specify)											

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum In Field, "Hg (Start)	Canister Vacuum In Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 LOW LIMIT	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-17	4/28	1115	1145	-28.5	-4		46231	X											
SSD-17	↓	1146	1214	-28	-3		1534	↓											
SS-22	↓	1508	1550	-30	-3.8		6578	↓											
SS-13	↓	1637	1715	-28.5	-2.5		42342N	↓											

Sampled by: <u>John Brimeyer</u> <u>Jennifer Clancey</u>	Temperature (Fahrenheit)		
	Interior	Ambient	
	Start	72°F	45.50°F
	Stop		
	Pressure (inches of Hg)		
	Interior	Ambient	
	Start		
	Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: <u>Jennifer Clancey</u>	Date/Time: <u>4/28/2011 1800</u>	Received by:
Relinquished by: <u>Shawn D. Hagg</u>	Date/Time: <u>4/28/11 18:02</u>	Received by:

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

704 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613  
801-736-2401 • 319-277-0430 FAX

## IH Sample Receipt Form

Client: Terracon Project: Chamberlain

City: Bethendorf

Date: 4/28/11 Receiver's Initials: SH Time (Delivered): 18:00

COC Completed Correctly? ☒ Yes ☐ No  
(Cite inconsistencies below)

### Sample Checklist (Check indicates conformance failure) Couriers

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

☐ UPS ☐ TA Courier  
☐ FedEx ☐ TA Field Services  
☐ DHL ☒ Client  
☐ USPS ☐ Other  
☐ Speed-Dee

☒ Samples Not Received in a Cooler  
☒ Temperature Not Taken

Reviewed By BCG Date 4/29/11

### Comments

Remarks/Action Taken:

Initial/Date:



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

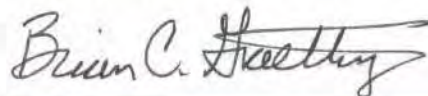
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: 800-750-2401

TestAmerica Job ID: CUD1698  
Client Project/Site: Chamberlain Vapor Sampling  
Client Project Description: TO-15 Scans

For:  
TERRACON - BETTENDORF  
870 40th Avenue  
Bettendorf, IA 52722

Attn: John Brimeyer



Authorized for release by:  
05/11/2011 03:52:12 PM

Brian C. Graettinger  
Operations Manager  
brian.graettinger@testamericainc.com

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

## Case Narrative

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1698

---

**Job ID: CUD1698**

---

**Laboratory: TestAmerica Cedar Falls**

**Narrative**

---

**Analyzed by TestAmerica - Knoxville, TN.**

1

2

3

4

5

6

7

## Sample Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1698

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUD1698-01	SS-47	Air	04/28/11 09:00	04/28/11 19:40
CUD1698-02	SS-28	Air	04/28/11 09:57	04/28/11 19:40
CUD1698-03	SS-56	Air	04/28/11 10:57	04/28/11 19:40
CUD1698-04	SS-60	Air	04/28/11 11:52	04/28/11 19:40
CUD1698-05	SS-G	Air	04/28/11 18:28	04/28/11 19:40
CUD1698-06	Equipment Blank-1	Air	04/28/11 18:48	04/28/11 19:40



# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1698

**Client Sample ID: SS-47**

Date Collected: 04/28/11 09:00

Date Received: 04/28/11 19:40

**Lab Sample ID: CUD1698-01**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 15:15	1.0

**Client Sample ID: SS-28**

Date Collected: 04/28/11 09:57

Date Received: 04/28/11 19:40

**Lab Sample ID: CUD1698-02**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 14:21	1.0

**Client Sample ID: SS-56**

Date Collected: 04/28/11 10:57

Date Received: 04/28/11 19:40

**Lab Sample ID: CUD1698-03**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 16:11	1.0

**Client Sample ID: SS-60**

Date Collected: 04/28/11 11:52

Date Received: 04/28/11 19:40

**Lab Sample ID: CUD1698-04**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 17:03	1.0

**Client Sample ID: SS-G**

Date Collected: 04/28/11 18:28

Date Received: 04/28/11 19:40

**Lab Sample ID: CUD1698-05**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 17:55	1.0

**Client Sample ID: Equipment Blank-1**

Date Collected: 04/28/11 18:48

Date Received: 04/28/11 19:40

**Lab Sample ID: CUD1698-06**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 18:55	1.0

<b>H1E030527 Analytical Report.....</b>	<b>1</b>
<b>Sample Receipt Documentation .....</b>	<b>13</b>
<b>Total Number of Pages .....</b>	<b>17</b>

## ANALYTICAL REPORT

PROJECT NO. CUD1698

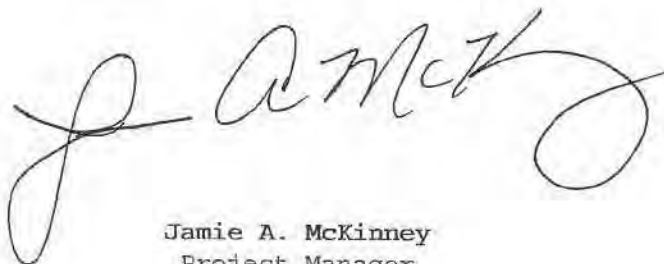
Terracon

Lot #: H1E030527

Brian Graettinger

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney  
Project Manager

May 9, 2011

## ANALYTICAL METHODS SUMMARY

HLE030527

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

### References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

**SAMPLE SUMMARY**

H1E030527

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MHTT0	001	CUD1698-01	04/28/11	09:00
MHTT7	002	CUD1698-02	04/28/11	09:57
MHTVC	003	CUD1698-03	04/28/11	10:57
MHTVE	004	CUD1698-04	04/28/11	11:52
MHTVF	005	CUD1698-05	04/28/11	18:28
MHTVL	006	CUD1698-06	04/28/11	18:48

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



## PROJECT NARRATIVE H1E030527

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**The original chain of custody documentation is included with this report.**

### Sample Receipt

There were no problems with the condition of the samples received.

### Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

Sample CUD1698-06 was reported with elevated reporting limits for all analytes due to the presence of non-target compounds. A dilution was necessary prior to analysis, and the reporting limits were adjusted accordingly.

TestAmerica Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Lab #88-0688, California DHS ELAP Cert. #2423, Colorado DPH, Connecticut DPH Lab #PH-0223, Florida DOH Lab #E87177, Georgia DNR Lab #906, Hawaii DOH, Illinois EPA Lab #200012, Indiana DOH Lab #C-TN-02, Iowa DNR Lab #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH, Maryland DOE Cert. #277, Michigan DEQ Lab #9933, Nevada DEP, New Jersey DEP Lab #TN001, New York DOH Lab #10781, North Carolina DPH Lab #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Lab #CL0059, Oklahoma DEQ Lab #9415, Pennsylvania DEP Lab #68-00576, South Carolina DHEC Cert #84001001, Tennessee DOH Lab #02014, Texas CEQ, Utah DOH Lab # QUAN3, Virginia DGS Lab #00165, Washington DOE Lab #C1314, West Virginia DEP Cert. #345, West Virginia DHHR Cert #9955C, Wisconsin DNR Lab #998044300, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.



TestAmerica Cedar Falls  
 Client Sample ID: CUD1698-01  
 GC/MS Volatiles

Lot-Sample # H1E030527 - 001 Work Order # MHTT01AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 15:15  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.24	0.080	0.012	1.3	0.44	0.065
Trichloroethene	1.1	0.040	0.014	5.8	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.42	0.080	0.016	2.8	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TestAmerica Cedar Falls  
 Client Sample ID: CUD1698-02  
 GC/MS Volatiles

Lot-Sample # H1E030527 - 002 Work Order # MHTT71AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 14:21  
 Dilution Factor.: 80.5 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	6.4	1.7	ND	35	9.2
Tetrachloroethene	17	6.4	1.3	120	44	8.7
trans-1,2-Dichloroethene	ND	6.4	1.6	ND	26	6.4
Trichloroethene	1100	3.2	1.1	6000	17	6.1
1,1,1-Trichloroethane	20	6.4	0.97	110	35	5.3
1,1-Dichloroethane	ND	6.4	0.80	ND	26	3.3
Vinyl chloride	ND	6.4	2.3	ND	16	6.0
1,1-Dichloroethene	ND	6.4	1.0	ND	26	4.1
cis-1,2-Dichloroethene	ND	6.4	1.9	ND	26	7.7

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_D0B.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUD1698-03  
 GC/MS Volatiles

Lot-Sample # H1E030527 - 003 Work Order # MHTVC1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 16:11  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	0.030 J	0.080	0.024	0.12 J	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.15	0.080	0.012	0.83	0.44	0.065
Trichloroethene	0.71	0.040	0.014	3.8	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.12	0.080	0.016	0.83	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUD1698-04  
 GC/MS Volatiles

Lot-Sample # H1E030527 - 004 Work Order # MHTVE1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 17:03  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.36	0.080	0.016	2.5	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	1.1	0.040	0.014	6.2	0.21	0.075
1,1,1-Trichloroethane	1.6	0.080	0.012	8.5	0.44	0.065
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_BOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUD1698-05  
 GC/MS Volatiles

Lot-Sample # H1E030527 - 005 Work Order # MHTVF1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #....: 1125185 Analysis Time....: 17:55  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	0.31	0.080	0.024	1.2	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1,1-Trichloroethane	0.076 J	0.080	0.012	0.42 J	0.44	0.065
Trichloroethene	0.71	0.040	0.014	3.8	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.32	0.080	0.016	2.2	0.54	0.11
1,1,2-Trichloroethane	0.043 J	0.080	0.021	0.23 J	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	100	60 - 140

#### Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOP.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls  
Client Sample ID: CUD1698-06  
GC/MS Volatiles

Lot-Sample # H1E030527 - 006 Work Order # MHTVL1AA Matrix.....: AIR

Date Sampled...: 04/28/2011 Date Received...: 05/03/2011  
Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
Prep Batch #....: 1125185 Analysis Time....: 18:55  
Dilution Factor.: 1.64 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.13	0.034	ND	0.72	0.19
Tetrachloroethene	0.16	0.13	0.026	1.1	0.89	0.18
trans-1,2-Dichloroethene	ND	0.13	0.033	ND	0.52	0.13
Trichloroethene	0.042 J	0.066	0.023	0.22 J	0.35	0.12
1,1,1-Trichloroethane	ND	0.13	0.020	ND	0.72	0.11
Vinyl chloride	ND	0.13	0.048	ND	0.34	0.12
1,1-Dichloroethane	ND	0.13	0.016	ND	0.53	0.066
1,1-Dichloroethene	ND	0.13	0.021	ND	0.52	0.085
cis-1,2-Dichloroethene	ND	0.13	0.039	ND	0.52	0.16

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	99	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)



TestAmerica Cedar Falls  
 Client Sample ID: INTRA-LAB BLANK  
 GC/MS Volatiles

Lot-Sample # H1E050000 - 185B Work Order # MHXQT1AE Matrix.....: AIR

Prep Date.....: 04/28/2011 Date Received.: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #.....: 1125185 Analysis Time....: 13:33  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	100	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 rev5MDL\_DOB.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CHECK SAMPLE  
 GC/MS Volatiles

Lot-Sample # H1E050000 - 185C Work Order # MHXQT1AF Matrix.....: AIR

Prep Date.....: 04/28/2011 Date Received.: 05/03/2011  
 Prep Date.....: 05/04/2011 Analysis Time....: 05/04/2011  
 Prep Batch #.....: 1125185 Analysis Time....: 11:41  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
1,1,2-Trichloroethane	5.00	5.52	27.3	30.1	110	70 - 130
Tetrachloroethene	5.00	5.25	33.9	35.6	105	70 - 130
trans-1,2-Dichloroethene	5.00	5.54	19.8	22.0	111	70 - 130
Trichloroethene	5.00	5.35	26.9	28.8	107	70 - 130
1,1,1-Trichloroethane	5.00	5.55	27.3	30.3	111	70 - 130
1,1-Dichloroethane	5.00	5.53	20.2	22.4	111	70 - 130
Vinyl chloride	5.00	5.33	12.8	13.6	107	70 - 130
cis-1,2-Dichloroethene	5.00	5.51	19.8	21.8	110	70 - 130
1,1-Dichloroethene	5.00	5.57	19.8	22.1	111	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

## SUBCONTRACT ORDER

13

TestAmerica Cedar Falls

CUD1698

171E030527

SENDING LABORATORY:

TestAmerica Cedar Falls  
 704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone: 800-750-2401  
 Fax: 319-277-2425  
 Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville  
 5815 Middlebrook Pike  
 Knoxville, TN 37921  
 Phone: (865) 291-3000  
 Fax: -

TestAmerica OR#:

Interlab

Analysis	Due	Expires	Comments
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Sample ID: CUD1698-01 ~ Air	Sampled: 04/28/11 09:00	Air Volume (in L):	1320N w/179
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AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 09:00
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 09:00
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 09:00

Sample ID: CUD1698-02 ~ Air	Sampled: 04/28/11 09:57	Air Volume (in L):	1519 w/26
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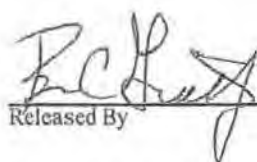
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 09:57
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 09:57
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 09:57

Sample ID: CUD1698-03 ~ Air	Sampled: 04/28/11 10:57	Air Volume (in L):	6349 w/142
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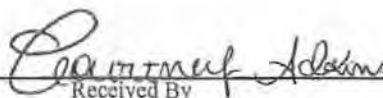
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 10:57
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 10:57
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 10:57

Sample ID: CUD1698-04 ~ Air	Sampled: 04/28/11 11:52	Air Volume (in L):	93219 w/82
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AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 11:52
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 11:52
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 11:52

Released By 

4/29/11  
Date

Received By 

5/3/11 1055  
Date

Released By

Date

Received By

Date

## SUBCONTRACT ORDER

14

TestAmerica Cedar Falls

CUD1698

HIF030527

Analysis	Due	Expires	Comments
Sample ID: CUD1698-05   Air	Sampled: 04/28/11 18:28	Air Volume (in L):	21369 w/168

AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 18:28
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 18:28
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 18:28

Sample ID: CUD1698-06   Air	Sampled: 04/28/11 18:48	Air Volume (in L):	1009
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AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 18:48
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 18:48
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 18:48

	4/29/11		5/3/11	1055
Released By	Date	Received By	Date	

Released By	Date	Received By	Date
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## TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <u>John Brimeyer</u>		Sampled By: <u>JME/APB</u>		1 of 1 COCs	
Company: <u>TERRACON</u>		Phone: <u>563.355.0702 jfbrimeyer@terracon.com</u>					
Address: <u>570 40th Ave</u>		Site Contact:					
City/State/Zip: <u>Bethesda, MD 20814</u>		TAL Contact:					
Phone: <u>563-355-0702</u>							
FAX: <u>563-355-4789</u>							
Project Name: <u>CHAMBERLAIN VAPOR SAMPLING</u>		Analysis Turnaround Time					
Site/location: <u>WATERLOO, IA</u>		(Standard) (Specify) <u>X</u>					
PO #		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
55-47	4/28/11	818	900	-30	-1.5	25179	1320N	X										X	
55-28		915	957	-25.5	-1.5	11526	1519	X										X	
55-56		1013	1057	-28.5	-1.0	142	6349	X										X	
55-60		1115	1152	-27.5	-1.0	82	93219	X										X	
55-6		1745	1828	-28	-1	168	21369	X										X	
EQUIPMENT BLANK-1		1846	1848	-	-	-	1009N	X										X	

Sampled by: <u>Justin Enwall / jnwall</u> <u>Rob Bergman / rbergman</u>	Temperature (Fahrenheit)		1 Box Received @ Ambient, 20°C Custody seals intact became FedEx: 420827076999 LE FLOWS CBA 5/3/11
	Interior	Ambient	
	Start	72°F 45-50°F	
	Stop	72°F 45-50°F	
	Pressure (inches of Hg)		
	Interior	Ambient	
	Start		
	Stop		

Special Instructions/QC Requirements & Comments: VOC by EPA TO-15, low level reporting analysis required  
- dropped off at Cedar Falls Test America location, each summary box individually certified

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: <u>Justin Enwall / jnwall</u>	Date/Time: <u>4/28/11 19:40</u>	Received by: <u>4/28/11 1940</u>
Relinquished by:	Date/Time:	Received by: <u>Chamberlain 5/3/11 1055</u>

# TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: 41E.D30527

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			<input type="checkbox"/> 1a Do not match COC <input type="checkbox"/> 1b Incomplete information <input type="checkbox"/> 1c Marking smeared <input type="checkbox"/> 1d Label torn <input type="checkbox"/> 1e No label <input type="checkbox"/> 1f COC not received <input type="checkbox"/> 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)			✓	<input type="checkbox"/> 2a Temp Blank = <input type="checkbox"/> 2b Cooler Temp = <input type="checkbox"/> 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	<input type="checkbox"/> 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			<input type="checkbox"/> 4a Not present <input type="checkbox"/> 4b Not intact <input type="checkbox"/> 4c Other:	
5. Were all of the samples listed on the COC received?	✓			<input type="checkbox"/> 5a Samples received-not on COC <input type="checkbox"/> 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			<input type="checkbox"/> 6a Leaking <input type="checkbox"/> 6b Broken	
7. Were VOA samples received without headspace?			✓	<input type="checkbox"/> 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			<input type="checkbox"/> 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	<input type="checkbox"/> 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			<input type="checkbox"/> 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	<input type="checkbox"/> Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid?	
13. Are the shipping containers intact?	✓			<input type="checkbox"/> 13a Leaking <input type="checkbox"/> 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			<input type="checkbox"/> 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			<input type="checkbox"/> 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			<input type="checkbox"/> 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			<input type="checkbox"/> 15a Incomplete information	
18. Is the client and project name/# identified?	✓			<input type="checkbox"/> 15a Incomplete information	
19. Was the sampler identified on the COC?	✓				

Quote #: 87209 PM Instructions: NA

Sample Receiving Associate:

*Courtney Adams*

Date: 5/3/11

QA026R22.doc, 012811



# Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: H1E030527

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DDF 5-4-11	NA	29.08	MHTT0	1320N	-1.1													9197
			MHTT7	1519	-1.3	+29.7												↓
			MHTVC	6349 <sup>94</sup>	-1.3													9193
			MHTVE	93219	-1.4													9197
			MHTVF	21639	-0.9													9193
			MHTVL	1009N	-19.8	+0.7												9197

Grab sample.

## Certification Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1698

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Cedar Falls		AIHA		101044
TestAmerica Cedar Falls	Illinois	NELAC	5	200024
TestAmerica Cedar Falls	Iowa	State Program	7	7
TestAmerica Cedar Falls	Kansas	NELAC	7	E-10341
TestAmerica Cedar Falls	Minnesota	NELAC	5	019-999-319
TestAmerica Cedar Falls	North Dakota	State Program	8	R-186
TestAmerica Cedar Falls	Oregon	NELAC	10	IA100001
TestAmerica Cedar Falls	Wisconsin	State Program	5	999917270

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

## Qualifier Definition/Glossary

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
$\alpha$	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

## Method Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUD1698

Method	Method Description	Protocol	Laboratory
EPA TO-15	Air Sample Analysis - Subcontract		TAL CF

### Protocol References:

### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL 800-750-2401



**TAL Knoxville**

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <u>John Brimcyer</u>		Sampled By: <u>JME/ARB</u>		1 of 1 COCs	
Company: <u>Terracon</u>		Phone: <u>563.355.0702</u> jfbrimcyer@terracon.com					
Address: <u>870 40th Ave.</u>		Site Contact:					
City/State/Zip: <u>Bethesda, IA 51722</u>		TAL Contact:					
Phone: <u>563-355-0702</u>							
FAX: <u>563-355-4789</u>							
Project Name: <u>CHAMBERLAIN VADA SAMPLING</u>		Analysis Turnaround Time					
Site/location: <u>WATERLOO, IA</u>		(Standard) (Specify) <u>X</u>					
PO #		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low Level AL	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-47	4/24/11	818	900	-30	-1.5	25179	1320N	X										X	
SS-28		915	957	-25.5	-1.5	15126	1519	X										X	
SS-56		1013	1057	-28.5	-1.0	142	6349	X										X	
SS-60		1115	1152	-27.5	-1.0	82	93219	X										X	
SS-6		1745	1828	-28	-1	168	21369	X										X	
EQUIPMENT BLANK-1		1846	1848	-	-	-	1009N	X										X	

Sampled by: <u>Justin Enwall / JME</u> <u>Rob Bergman / ARB</u>	Temperature (Fahrenheit)		
		Interior	Ambient
	Start	72°F	45-50°F
	Stop	72°F	45-50°F
	Pressure (inches of Hg)		
		Interior	Ambient
	Start		
	Stop		

Special Instructions/QC Requirements & Comments: VOC by EPA TO-15, low level reporting analysis required  
- dropped off at Cedar Falls Test America's location, each canister box individually certified

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: <u>Justin Enwall / Terracon</u>	Date/Time: <u>4/28/11 19:40</u>	Received by: <u>[Signature]</u> <u>4/28/11 1940</u>
Relinquished by:	Date/Time:	Received by:

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

705 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613  
800-751-2401 • 319-271-2420 FAX

## IH Sample Receipt Form

Client: Tenacore Project: \_\_\_\_\_

City: Bethesda, Md

Date: 4/28/11 Receiver's Initials: JWA Time (Delivered): 1940

COC Completed Correctly? ☒ Yes ☐ No  
(Cite inconsistencies below)

Sample Checklist (Check indicates conformance failure) Couriers

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

<input type="checkbox"/> UPS	<input type="checkbox"/> TA Courier
<input type="checkbox"/> FedEx	<input type="checkbox"/> TA Field Services
<input type="checkbox"/> DHL	<input checked="" type="checkbox"/> Client
<input type="checkbox"/> USPS	<input type="checkbox"/> Other
<input type="checkbox"/> Spee-Dee	

<input checked="" type="checkbox"/> Samples Not Received in a Cooler
<input checked="" type="checkbox"/> Temperature Not Taken

Reviewed By BCG Date 4/29/11

Comments

Remarks/Action Taken:

Initial/Date:



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

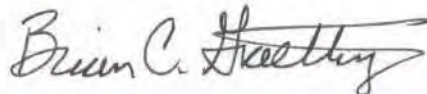
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: 800-750-2401

TestAmerica Job ID: CUE0002  
Client Project/Site: Chamberlain Vapor Sampling #07107020  
Client Project Description: TO-15 Scans

For:  
TERRACON - BETTENDORF  
870 40th Avenue  
Bettendorf, IA 52722

Attn: John Brimeyer



Authorized for release by:  
05/17/2011 12:10:22 PM

Brian C. Graettinger  
Operations Manager  
brian.graettinger@testamericainc.com

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*



## Case Narrative

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

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**Job ID: CUE0002**

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**Laboratory: TestAmerica Cedar Falls**

**Narrative**

---

**Analyzed by TestAmerica - Knoxville, TN.**

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## Sample Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUE0002-01	1A-33-B	Air	04/29/11 08:04	04/29/11 17:30
CUE0002-02	1A-33-1	Air	04/29/11 08:13	04/29/11 17:30
CUE0002-03	SS-33	Air	04/29/11 08:50	04/29/11 17:30
CUE0002-04	1A-4-B	Air	04/29/11 14:50	04/29/11 17:30
CUE0002-05	1A-4-1	Air	04/29/11 14:52	04/29/11 17:30
CUE0002-06	AA-4	Air	04/29/11 14:59	04/29/11 17:30
CUE0002-07	SS-4	Air	04/29/11 09:46	04/29/11 17:30
CUE0002-08	SS-37	Air	04/29/11 10:50	04/29/11 17:30
CUE0002-09	SS-20	Air	04/29/11 11:50	04/29/11 17:30
CUE0002-10	SS-48	Air	04/29/11 12:50	04/29/11 17:30
CUE0002-11	1A-48-B	Air	04/29/11 15:22	04/29/11 17:30
CUE0002-12	1A-48-B-D	Air	04/29/11 15:22	04/29/11 17:30
CUE0002-13	1A-48-MF	Air	04/29/11 15:25	04/29/11 17:30
CUE0002-14	SS-38	Air	04/29/11 13:57	04/29/11 17:30
CUE0002-15	SSD-38	Air	04/29/11 13:57	04/29/11 17:30
CUE0002-16	1A-38-MF	Air	04/29/11 16:02	04/29/11 17:30
CUE0002-17	1A-38-B	Air	04/29/11 16:05	04/29/11 17:30
CUE0002-18	SS-39	Air	04/29/11 15:19	04/29/11 17:30
CUE0002-19	SS-21	Air	04/29/11 16:30	04/29/11 17:30
CUE0002-20	Equipment Blank-2	Air	04/29/11 16:55	04/29/11 17:30

# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

**Client Sample ID: 1A-33-B**

Date Collected: 04/29/11 08:04

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-01**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 13:23	1.0

**Client Sample ID: 1A-33-1**

Date Collected: 04/29/11 08:13

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-02**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 14:17	1.0

**Client Sample ID: SS-33**

Date Collected: 04/29/11 08:50

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-03**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 11:39	1.0

**Client Sample ID: 1A-4-B**

Date Collected: 04/29/11 14:50

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-04**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 15:10	1.0

**Client Sample ID: 1A-4-1**

Date Collected: 04/29/11 14:52

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-05**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 16:05	1.0

**Client Sample ID: AA-4**

Date Collected: 04/29/11 14:59

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-06**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 16:59	1.0



# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

**Client Sample ID: SS-4**

Date Collected: 04/29/11 09:46

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-07**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 12:28	1.0

**Client Sample ID: SS-37**

Date Collected: 04/29/11 10:50

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-08**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 17:55	1.0

**Client Sample ID: SS-20**

Date Collected: 04/29/11 11:50

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-09**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 18:54	1.0

**Client Sample ID: SS-48**

Date Collected: 04/29/11 12:50

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-10**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 19:50	1.0

**Client Sample ID: 1A-48-B**

Date Collected: 04/29/11 15:22

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-11**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 20:43	1.0

**Client Sample ID: 1A-48-B-D**

Date Collected: 04/29/11 15:22

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-12**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 21:35	1.0

# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

**Client Sample ID: 1A-48-MF**

Date Collected: 04/29/11 15:25

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-13**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 22:27	1.0

**Client Sample ID: SS-38**

Date Collected: 04/29/11 13:57

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-14**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 23:20	1.0

**Client Sample ID: SSD-38**

Date Collected: 04/29/11 13:57

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-15**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 00:14	1.0

**Client Sample ID: 1A-38-MF**

Date Collected: 04/29/11 16:02

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-16**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 03:54	1.0

**Client Sample ID: 1A-38-B**

Date Collected: 04/29/11 16:05

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-17**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 02:08	1.0

**Client Sample ID: SS-39**

Date Collected: 04/29/11 15:19

Date Received: 04/29/11 17:30

**Lab Sample ID: CUE0002-18**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 04:47	1.0



## Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

**Client Sample ID: SS-21**

**Date Collected: 04/29/11 16:30**

**Date Received: 04/29/11 17:30**

**Lab Sample ID: CUE0002-19**

**Matrix: Air**

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 05:41	1.0

**Client Sample ID: Equipment Blank-2**

**Date Collected: 04/29/11 16:55**

**Date Received: 04/29/11 17:30**

**Lab Sample ID: CUE0002-20**

**Matrix: Air**

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 06:34	1.0



<b>H1E040525 Analytical Report.....</b>	<b>1</b>
<b>Sample Receipt Documentation .....</b>	<b>33</b>
<b>Total Number of Pages .....</b>	<b>39</b>

## ANALYTICAL REPORT

PROJECT NO. CUE0002

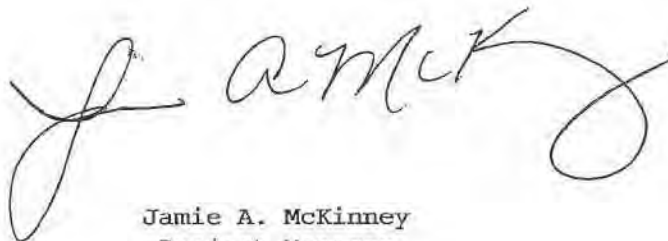
Terracon

Lot #: H1E040525

Brian Graettinger

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney  
Project Manager

May 12, 2011

## ANALYTICAL METHODS SUMMARY

HLE040525

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

### References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

# **SAMPLE SUMMARY**

H1E040525

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MHWD6	001	CUE0002-01	04/29/11	08:04
MHWD9	002	CUE0002-02	04/29/11	08:13
MHWEA	003	CUE0002-03	04/29/11	08:50
MHWED	004	CUE0002-04	04/29/11	14:50
MHWER	005	CUE0002-05	04/29/11	14:52
MHWET	006	CUE0002-06	04/29/11	14:59
MHWEW	007	CUE0002-07	04/29/11	09:46
MHWEX	008	CUE0002-08	04/29/11	10:50
MHWE0	009	CUE0002-09	04/29/11	11:50
MHWE2	010	CUE0002-10	04/29/11	12:50
MHWE4	011	CUE0002-11	04/29/11	15:22
MHWE5	012	CUE0002-12	04/29/11	15:22
MHWE6	013	CUE0002-13	04/29/11	15:25
MHWE8	014	CUE0002-14	04/29/11	13:57
MHWFC	015	CUE0002-15	04/29/11	13:57
MHWFG	016	CUE0002-16	04/29/11	16:02
MHWFT	017	CUE0002-17	04/29/11	16:05
MHWFL	018	CUE0002-18	04/29/11	15:19
MHWFQ	019	CUE0002-19	04/29/11	16:30
MHFWF	020	CUE0002-20	04/29/11	16:55

## **NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

## PROJECT NARRATIVE H1E040525

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

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**The original chain of custody documentation is included with this report.**

### Sample Receipt

There were no problems with the condition of the samples received.

### Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

Sample CUE0002-03 was reported with elevated reporting limits for all analytes due to the presence of non-target compounds. A dilution was necessary prior to analysis, and the reporting limits were adjusted accordingly.

The concentration of trichloroethene in samples CUE0002-07, CUE0002-10, and tetrachloroethene in samples CUE0002-14, CUE0002-15 exceeded the calibration level of the instrument. The samples were analyzed at a dilution to bring the concentration of the compound into the instrument calibration range. The results for both analyses are reported in order to provide the lowest possible reporting limits.

TestAmerica Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Lab #88-0688, California DHS ELAP Cert. #2423, Colorado DPHE, Connecticut DPH Lab #PH-0223, Florida DOH Lab #E87177, Georgia DNR Lab #908, Hawaii DOH, Illinois EPA Lab #200012, Indiana DOH Lab #C-TN-02, Iowa DNR Lab #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH, Maryland DOE Cert. #277, Michigan DEQ Lab #9933, Nevada DEP, New Jersey DEP Lab #TN001, New York DOH Lab #10781, North Carolina DPH Lab #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Lab #CL0059, Oklahoma DEQ Lab #9415, Pennsylvania DEP Lab #68-00576, South Carolina DHEC Cert. #84001001, Tennessee DOH Lab #02014, Texas CEQ, Utah DOH Lab # QUAN3, Virginia DGS Lab #00165, Washington DOE Lab #C1314, West Virginia DEP Cert. #345, West Virginia DHHR Cert #9955C, Wisconsin DNR Lab #998044300, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.



TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-01  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 001 Work Order # MHWD61AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 13:23  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.017 J	0.080	0.012	0.094 J	0.44	0.065
Trichloroethene	0.041	0.040	0.014	0.22	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.028 J	0.080	0.016	0.19 J	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_D06.rpt version 5,002 02/07/2011



TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-02  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 002 Work Order # MHWD91AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 14:17  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.023 J	0.080	0.016	0.16 J	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.062	0.040	0.014	0.33	0.21	0.075
1,1,1-Trichloroethane	0.012 J	0.080	0.012	0.067 J	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-03  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 003 Work Order # MIWEA1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #....: 1125343 Analysis Time....: 11:39  
 Dilution Factor.: 5 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.40	0.12	ND	1.6	0.48
1,1-Dichloroethene	ND	0.40	0.065	ND	1.6	0.26
Vinyl chloride	ND	0.40	0.14	ND	1.0	0.37
1,1-Dichloroethane	ND	0.40	0.050	ND	1.6	0.20
1,1,1-Trichloroethane	11	0.40	0.060	58	2.2	0.33
Trichloroethene	11	0.20	0.070	61	1.1	0.38
trans-1,2-Dichloroethene	ND	0.40	0.10	ND	1.6	0.40
Tetrachloroethene	1.6	0.40	0.080	11	2.7	0.54
1,1,2-Trichloroethane	ND	0.40	0.10	ND	2.2	0.57

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14\_rev5MDL\_D0D.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-04  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 004 Work Order # MHWED1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #....: 1125343 Analysis Time....: 15:10  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.022 J	0.080	0.016	0.15 J	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.078	0.040	0.014	0.42	0.21	0.075
1,1,1-Trichloroethane	0.017 J	0.080	0.012	0.094 J	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

#### Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-05  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 005 Work Order # MHWER1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 16:05  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	0.088	0.080	0.024	0.35	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.016 J	0.080	0.012	0.087 J	0.44	0.065
Trichloroethene	0.19	0.040	0.014	1.0	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.039 J	0.080	0.016	0.26 J	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

#### Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-06  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 006 Work Order # MHWET1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 16:59  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
<b>Tetrachloroethene</b>	<b>0.028 J</b>	<b>0.080</b>	<b>0.016</b>	<b>0.19 J</b>	<b>0.54</b>	<b>0.11</b>
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
<b>Trichloroethene</b>	<b>0.016 J</b>	<b>0.040</b>	<b>0.014</b>	<b>0.088 J</b>	<b>0.21</b>	<b>0.075</b>
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

#### Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14\_rev5MDL\_D00.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls  
Client Sample ID: CUE0002-07  
GC/MS Volatiles

Lot-Sample # H1E040525 - 007 Work Order # MHWEW1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
Prep Batch #....: 1125343 Analysis Time....: 12:28  
Dilution Factor.: 10 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.80	0.24	ND	3.2	0.95
1,1-Dichloroethene	ND	0.80	0.13	ND	3.2	0.52
Vinyl chloride	ND	0.80	0.29	ND	2.0	0.74
1,1-Dichloroethane	0.16 J	0.80	0.10	0.65 J	3.2	0.40
1,1,1-Trichloroethane	9.7	0.80	0.12	53	4.4	0.65
Trichloroethene	240 E	0.40	0.14	1300 E	2.1	0.75
trans-1,2-Dichloroethene	ND	0.80	0.20	ND	3.2	0.79
Tetrachloroethene	6.0	0.80	0.16	41	5.4	1.1
1,1,2-Trichloroethane	ND	0.80	0.21	ND	4.4	1.1

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

Qualifiers

E Estimated result. Result concentration exceeds the calibration range.  
J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-07  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 007 Work Order # MHWEW2AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
 Prep Batch #....: 1125343 Analysis Time....: 03:00  
 Dilution Factor.: 25 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	240 D	1.0	0.35	1300 D	5.4	1.9

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	109	60 - 140

Qualifiers

D Result was obtained from the analysis of a dilution.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-08  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 008 Work Order # MHWEX1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #....: 1125343 Analysis Time....: 17:55  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	0.61	0.040	0.014	3.3	0.21	0.075
1,1,1-Trichloroethane	0.71	0.080	0.012	3.9	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	4.1	0.080	0.016	28	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	106	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-09  
 GC/MS Volatiles

Lot-Sample # H11E040525 - 009 Work Order # MHWE01AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 18:54  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
trans-1,2-Dichloroethene	0.067 J	0.080	0.020	0.27 J	0.32	0.079
Tetrachloroethene	0.66	0.080	0.016	4.5	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.067 J	0.080	0.012	0.36 J	0.44	0.065
Trichloroethene	1.5	0.040	0.014	8.3	0.21	0.075

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-10  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 010 Work Order # MHWE21AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #....: 1125343 Analysis Time....: 19:50  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	17 E	0.040	0.014	89 E	0.21	0.075
1,1,1-Trichloroethane	5.9	0.080	0.012	32	0.44	0.065
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	2.2	0.080	0.016	15	0.54	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	109	60 - 140

#### Qualifiers

E Estimated result. Result concentration exceeds the calibration range.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-10  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 010 Work Order # MHWE22AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/06/2011 Analysis Time....: 05/06/2011  
 Prep Batch #....: 1129093 Analysis Time....: 21:15  
 Dilution Factor.: 2.5 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	15 D	0.10	0.035	81 D	0.54	0.19

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

#### Qualifiers

D Result was obtained from the analysis of a dilution.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-11  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 011 Work Order # M11WE41AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #....: 1125343 Analysis Time....: 20:43  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	0.033 J	0.040	0.014	0.18 J	0.21	0.075
1,1,1-Trichloroethane	0.023 J	0.080	0.012	0.13 J	0.44	0.065
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Tetrachloroethene	0.26	0.080	0.016	1.7	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

#### Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
Client Sample ID: CUE0002-12  
GC/MS Volatiles

Lot-Sample # H1E040525 - 012 Work Order # MHWE51AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
Prep Batch #....: 1125343 Analysis Time....: 21:35  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.36	0.080	0.016	2.5	0.54	0.11
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	0.023 J	0.080	0.012	0.12 J	0.44	0.065
Trichloroethene	0.036 J	0.040	0.014	0.20 J	0.21	0.075

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

#### Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-13  
 GC/MS Volatiles

Lot-Sample # H1E040525 -013 Work Order # MHWE61AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 22:27  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	0.030 J	0.040	0.014	0.16 J	0.21	0.075
1,1,1-Trichloroethane	0.022 J	0.080	0.012	0.12 J	0.44	0.065
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.10	0.080	0.016	0.69	0.54	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

#### Qualifiers

J Estimated result, Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-14  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 014 Work Order # MHWE81AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
 Prep Batch #....: 1125343 Analysis Time....: 23:20  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	19 E	0.080	0.016	130 E	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	0.044 J	0.080	0.012	0.24 J	0.44	0.065
Trichloroethene	0.015 J	0.040	0.014	0.080 J	0.21	0.075

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

#### Qualifiers

E Estimated result. Result concentration exceeds the calibration range.  
 J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-14  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 014 Work Order # MHWE82AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/06/2011 Analysis Time....: 05/07/2011  
 Prep Batch #....: 1129093 Analysis Time....: 01:23  
 Dilution Factor.: 2.5 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	20 D	0.20	0.040	130 D	1.4	0.27

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	106	60 - 140

#### Qualifiers

D Result was obtained from the analysis of a dilution.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-15  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 015 Work Order # MHWFC1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
 Prep Batch #....: 1125343 Analysis Time....: 00:14  
 Dilution Factor: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	20 E	0.080	0.016	140 E	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.096	0.040	0.014	0.52	0.21	0.075
1,1,1-Trichloroethane	0.048 J	0.080	0.012	0.26 J	0.44	0.065
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

#### Qualifiers

E Estimated result. Result concentration exceeds the calibration range.

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUF0002-15  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 015 Work Order # MHWFC2AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/06/2011 Analysis Time....: 05/07/2011  
 Prep Batch #....: 1129093 Analysis Time....: 02:13  
 Dilution Factor.: 2.5 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	20 D	0.20	0.040	140 D	1.4	0.27

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

#### Qualifiers

D Result was obtained from the analysis of a dilution.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
Client Sample ID: CUE0002-16  
GC/MS Volatiles

Lot-Sample # H1E040525 - 016 Work Order # MHWFG1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
Prep Batch #.....: 1125343 Analysis Time....: 03:54  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	0.25	0.080	0.016	1.7	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	0.048 J	0.080	0.012	0.26 J	0.44	0.065
Trichloroethene	0.025 J	0.040	0.014	0.14 J	0.21	0.075
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
Client Sample ID: CUE0002-17  
GC/MS Volatiles

Lot-Sample # HJB040525 - 017 Work Order # MHWFJ1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
Prep Batch #....: 1125343 Analysis Time....: 02:08  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	0.021 J	0.040	0.014	0.11 J	0.21	0.075
1,1,1-Trichloroethane	0.036 J	0.080	0.012	0.20 J	0.44	0.065
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.29	0.080	0.016	2.0	0.54	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-18  
 GC/MS Volatiles

Lot-Sample # H1B040525 - 018 Work Order # MHWFL1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
 Prep Batch #....: 1125343 Analysis Time....: 04:47  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	0.43	0.080	0.016	2.9	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	0.059	0.040	0.014	0.32	0.21	0.075
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0002-19  
 GC/MS Volatiles

Lot-Sample # H1E040525 - 019 Work Order # MHWFQ1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
 Prep Batch #....: 1125343 Analysis Time....: 05:41  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	0.16	0.040	0.014	0.86	0.21	0.075
1,1,1-Trichloroethane	0.020 J	0.080	0.012	0.11 J	0.44	0.065
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.15	0.080	0.016	0.99	0.54	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14\_rev5MDL\_DOD.rpt version 5.002 02/07/2011

## TestAmerica Cedar Falls

Client Sample ID: CUE0002-20

## GC/MS Volatiles

Lot-Sample # H1E040525 - 020 Work Order # MHWFW1AA Matrix.....: AIR

Date Sampled...: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time....: 05/06/2011  
 Prep Batch #.....: 1125343 Analysis Time....: 06:34  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	0.14	0.080	0.016	0.93	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14\_rev5MDL\_DOD.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls  
 Client Sample ID: INTRA-LAB BLANK  
 GC/MS Volatiles

Lot-Sample # H1E050000 - 343B Work Order # MH0T11AA Matrix.....: AIR

Prep Date.....: 04/29/2011 Date Received...: 05/04/2011  
 Prep Date.....: 05/05/2011 Analysis Time.....: 05/05/2011  
 Prep Batch #.....: 1125343 Analysis Time.....: 10:50  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls  
Client Sample ID: CHECK SAMPLE  
GC/MS Volatiles

Lot-Sample # H1E050000 - 343C Work Order # MH0T11AC Matrix.....: AIR

Prep Date.....: 04/29/2011 Date Received...: 05/04/2011  
Prep Date.....: 05/05/2011 Analysis Time....: 05/05/2011  
Prep Batch #.....: 1125343 Analysis Time....: 08:40  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloroethene	5.00	4.94	33.9	33.5	99	70 - 130
1,1,2-Trichloroethane	5.00	5.10	27.3	27.8	102	70 - 130
trans-1,2-Dichloroethene	5.00	5.39	19.8	21.4	108	70 - 130
1,1,1-Trichloroethane	5.00	5.49	27.3	30.0	110	70 - 130
Trichloroethene	5.00	4.90	26.9	26.3	98	70 - 130
1,1-Dichloroethane	5.00	5.36	20.2	21.7	107	70 - 130
Vinyl chloride	5.00	5.54	12.8	14.2	111	70 - 130
1,1-Dichloroethene	5.00	5.48	19.8	21.7	110	70 - 130
cis-1,2-Dichloroethene	5.00	5.35	19.8	21.2	107	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DGD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
Client Sample ID: INTRA-LAB BLANK  
GC/MS Volatiles

Lot-Sample # H1E090000 - 093B Work Order # MH4F01AA Matrix.....: AIR

Prep Date.....: 04/29/2011 Date Received..: 05/04/2011  
Prep Date.....: 05/06/2011 Analysis Time....: 05/06/2011  
Prep Batch #.....: 1129093 Analysis Time....: 13:00  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CHECK SAMPLE  
 GC/MS Volatiles

Lot-Sample # H1E090000 - 093C Work Order # MH4F01AC Matrix.....: AIR

Prep Date.....: 04/29/2011 Date Received..: 05/04/2011  
 Prep Date.....: 05/06/2011 Analysis Time....: 05/06/2011  
 Prep Batch #.....: 1129093 Analysis Time....: 09:35  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloroethene	5.00	4.76	33.9	32.3	95	70 - 130
Trichloroethene	5.00	4.97	26.9	26.7	99	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

## SUBCONTRACT ORDER

33

TestAmerica Cedar Falls

HIF 040525

CUE0002

SENDING LABORATORY:

TestAmerica Cedar Falls  
 704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone: 800-750-2401  
 Fax: 319-277-2425  
 Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville  
 5815 Middlebrook Pike  
 Knoxville, TN 37921  
 Phone: (865) 291-3000  
 Fax: -

TestAmerica OR#:

*Interlocks*

Analysis	Due	Expires	Comments
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Sample ID: CUE0002-01, Air	Sampled: 04/29/11 08:04	Air Volume (in L):	12543 w/K431
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AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 08:04
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 08:04
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 08:04

Sample ID: CUE0002-02, Air	Sampled: 04/29/11 08:13	Air Volume (in L):	0112 w/K392
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AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 08:13
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 08:13
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 08:13

Sample ID: CUE0002-03, Air	Sampled: 04/29/11 08:50	Air Volume (in L):	12345
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AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 08:50
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 08:50
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 08:50

Sample ID: CUE0002-04, Air	Sampled: 04/29/11 14:50	Air Volume (in L):	04391 w/K423
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AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 14:50
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 14:50
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 14:50

4 boxes With Custody SE  
 Received @ Ambient Temp  
 R.H. 5/4/11

4 bx FedEx 42082707707  
 420827077138, 42082707709  
 420827077080  
 20 CANS 19 FLOWS (10 F 9 R)

Released By

Date

Received By

Date

Released By

Date

Received By

Date



## SUBCONTRACT ORDER

34

TestAmerica Cedar Falls

H1E04D525

CUE0002

Analysis	Due	Expires	Comments
Sample ID: CUE0002-05 Air	Sampled: 04/29/11 14:52	Air Volume (in L):	12340 w/K236

AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 14:52
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 14:52
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 14:52

Sample ID: CUE0002-06 Air	Sampled: 04/29/11 14:59	Air Volume (in L):	12266 w/K188
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AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 14:59
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 14:59
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 14:59

Sample ID: CUE0002-07 Air	Sampled: 04/29/11 09:46	Air Volume (in L):	1410 w/19
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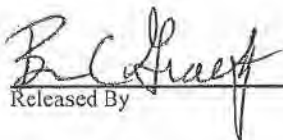
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 09:46
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 09:46
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 09:46

Sample ID: CUE0002-08 Air	Sampled: 04/29/11 10:50	Air Volume (in L):	04750 w/150
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AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 10:50
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 10:50
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 10:50

Sample ID: CUE0002-09 Air	Sampled: 04/29/11 11:50	Air Volume (in L):	12820 w/198
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AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 11:50
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 11:50
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 11:50

Released By 

5/2/11  
Date

Received By

Date

Released By

Date

Received By

Date

 5/4/11 09:45

## SUBCONTRACT ORDER

35

TestAmerica Cedar Falls

CUE0002

H/E040S25

Analysis	Due	Expires	Comments
Sample ID: CUE0002-10 Air	Sampled: 04/29/11 12:50	Air Volume (in L):	1013 w/138
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 12:50	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 12:50	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 12:50	
Sample ID: CUE0002-11 Air	Sampled: 04/29/11 15:22	Air Volume (in L):	1495 w/K406
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:22	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:22	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:22	
Sample ID: CUE0002-12 Air	Sampled: 04/29/11 15:22	Air Volume (in L):	11157 w/K362
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:22	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:22	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:22	
Sample ID: CUE0002-13 Air	Sampled: 04/29/11 15:25	Air Volume (in L):	0120 w/K270
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:25	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:25	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:25	
Sample ID: CUE0002-14 Air	Sampled: 04/29/11 13:57	Air Volume (in L):	S-1530 w/10
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 13:57	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 13:57	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 13:57	

Released By *BC Shaeff* Date *5/2/11*

Received By *Rita Hunsack* Date *5/4/11* *09:45*

Released By \_\_\_\_\_ Date \_\_\_\_\_

Received By \_\_\_\_\_ Date \_\_\_\_\_



TestAmerica Cedar Falls

CUE0002

141E040525

Analysis	Due	Expires	Comments
Sample ID: CUE0002-15 Air	Sampled: 04/29/11 13:57	Air Volume (in L):	92042 w/71
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 13:57	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 13:57	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 13:57	
Sample ID: CUE0002-16 Air	Sampled: 04/29/11 16:02	Air Volume (in L):	1426 w/K484
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:02	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:02	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:02	
Sample ID: CUE0002-17 Air	Sampled: 04/29/11 16:05	Air Volume (in L):	1407 w/K137
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:05	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:05	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:05	
Sample ID: CUE0002-18 Air	Sampled: 04/29/11 15:19	Air Volume (in L):	6386 w/11
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:19	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:19	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:19	
Sample ID: CUE0002-19 Air	Sampled: 04/29/11 16:30	Air Volume (in L):	11146 w/55
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:30	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:30	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:30	

Released By

Date

Received By

Date

Released By

Date

Received By

Date

## SUBCONTRACT ORDER

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TestAmerica Cedar Falls

CUE0002

1-11E04DS25

Analysis	Due	Expires	Comments
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Sample ID: CUE0002-20	Air	Sampled: 04/29/11 16:55	Air Volume (in L): 1119
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AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:55
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:55
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:55

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Page 5 of 5

# TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: WFM0525

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	X			<input type="checkbox"/> 1a Do not match COC <input type="checkbox"/> 1b Incomplete information <input type="checkbox"/> 1c Marking smeared <input type="checkbox"/> 1d Label torn <input type="checkbox"/> 1e No label <input type="checkbox"/> 1f COC not received <input type="checkbox"/> 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C)			X	<input type="checkbox"/> 2a Temp Blank = <input type="checkbox"/> 2b Cooler Temp = <input type="checkbox"/> 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			X	<input type="checkbox"/> 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	X			<input type="checkbox"/> 4a Not present <input type="checkbox"/> 4b Not intact <input type="checkbox"/> 4c Other:	
5. Were all of the samples listed on the COC received?	X			<input type="checkbox"/> 5a Samples received-not on COC <input type="checkbox"/> 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	X			<input type="checkbox"/> 6a Leaking <input type="checkbox"/> 6b Broken	
7. Were VOA samples received without headspace?			X	<input type="checkbox"/> 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	X			<input type="checkbox"/> 8a Improper container	
9. Did you check for residual chlorine, if necessary?			X	<input type="checkbox"/> 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	X			<input type="checkbox"/> 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			X	<input type="checkbox"/> Incomplete information	
12. For 1613B water samples is pH<9?			X	If no, was pH adjusted to pH 7 - 9 with sulfuric acid?	
13. Are the shipping containers intact?	X			<input type="checkbox"/> 13a Leaking <input type="checkbox"/> 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	X			<input type="checkbox"/> 14a Not relinquished	
15. Are tests/parameters listed for each sample?	X			<input type="checkbox"/> 15a Incomplete information	
16. Is the matrix of the samples noted?	X			<input type="checkbox"/> 15a Incomplete information	
17. Is the date/time of sample collection noted?	X			<input type="checkbox"/> 15a Incomplete information	
18. Is the client and project name/# identified?	X			<input type="checkbox"/> 15a Incomplete information	
19. Was the sampler identified on the COC?		X			
Quote #: <u>87209</u> PM Instructions: _____					

Sample Receiving Associate: Rita Hancock

Date: 5/4/11

QA026R22.doc, 012811



# Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: H1E040525

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
E-5/4/11	NA	29.14	MHWD6	12543	0.0													9192
			MHWD9	0112	-0.5													9194
			MHWEA	12345	-1.9													9182
			MHWED	04391	-1.0													9192
			MHWER	12340	-1.0													9194
			MHWET	12266	-0.8													9195
			MHWEW	1410	-1.7													9196
			MHWEX	04750	-2.2													↓
			MHWE0	12820	-1.0													9192
			MHWE2	1013	-2.6													9197
			MHWE4	1495	-3.4													9199
			MHWE5	11157	-1.9													9192
			MHWE6	0120	-3.9													↓
			MHWE8	S1530	-1.9													9193
			MHWFC	92042	-1.7													9193
			MHWFG	1426	-3.9													9195
			MHWFJ	1407	-3.0													9192
			MHWFL	6386	-2.1													9197
			MHWFQ	11146	-2.5													↓
			MHWFV	1119	0.0													↓

# TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>John Brimeyer</i>		Sampled By: <i>jmc/jfb/jme</i>		1 of 4 COCs	
Company: <i>TERRACON</i>		Phone: <i>563.355.0702 jfb@terracon.com</i>					
Address: <i>870 40th Ave</i>		Site Contact:					
City/State/Zip: <i>Betterton, IA 52722</i>		TAL Contact:					
Phone: <i>563.355.0702</i>							
FAX: <i>563.355.4789</i>							
Project Name: <i>Chamberlain Vapor Intrusion</i>		Analysis Turnaround Time					
Site/location:		Standard (Specify)					
PROJECT # <i>07107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 LOW UNIT	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-33-B	4/28-4/29	810	804	-29	-1.5	K431	12543	X											
IA-33-1	4/28-4/29	820	813	-29	-2.5	K392	0112	X											
SS-33	4/29	810	850	-29	-2.5	-	12345												
IA-4-B	4/28-4/29	915	1450	-29	-2	K423	04391												
IA-4-1	4/28-4/29	918	1452	-36	-3	K234	12340												
AA-4	4/28-4/29	929	1459	-30	-1.5	K188	12246	✓											

Sampled by: <i>Justin Enwall</i> <i>John Brimeyer</i> <i>Justin Enwall</i>	Temperature (Fahrenheit)	
	Interior	Ambient
	Start	72°F 40-60°F
	Stop	72°F 40-60°F
	Pressure (inches of Hg)	
	Interior	Ambient
	Start	
	Stop	

Special Instructions/QC Requirements & Comments: *100 EPA TO-15 low unit Reporting required*  
*-chopped off at Test America Cedar Falls in individually*

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: <i>Justin Enwall</i>	Date/Time: <i>4/29/2011 1705</i>	Received by: <i>Justin Enwall</i>
Relinquished by: <i>Justin Enwall</i>	Date/Time: <i>4/29/2011 1730</i>	Received by: <i>Justin Enwall</i>



# TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>John Brunner</i>		Sampled By: <i>Jim Hobbins</i>		2 of 4 COCs	
Company: <i>Terracon</i>		Phone: <i>563.355.0702</i>		Site Contact: <i>terracon.com</i>			
Address: <i>870 40th Ave</i>		Site Contact:					
City/State/Zip: <i>Bartonsville, IA 52722</i>		TAL Contact:					
Phone: <i>563.355.0702</i>							
FAX: <i>563.355.4389</i>							
Project Name: <i>Chamberlain Vapor Intrusion</i>		Analysis Turnaround Time					
Site/Location:		Standard (Specify)					
Re: <i>Project # 07107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low Limit	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-4	4/29	282	946	-28	-1.5	19	1410	X											
SS-37	4/29	1016	1050	-29	-2.5	150	04750												
SS-20	4/29	1111	1150	-28.5	-2.5	198	12820												
SS-48	4/29	1215	1250	-28	-2.5	138	1013												
IA-48-B	4/28-4/29	1218	1522	-29.5	-5	K400	1495												
IA-48-B-D	4/28-4/29	1218	1522	-29	-3	K362	11157												

Sampled by: <i>jen clancy</i> <i>John Brunner</i> <i>Justin Enwall</i>	Temperature (Fahrenheit)	
	Interior	Ambient
	Start	72°F
	Stop	72°F

	Pressure (inches of Hg)	
	Interior	Ambient
	Start	
	Stop	

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: <i>Jennifer McClancey</i>	Date/Time: <i>4/29/2011 1705</i>	Received by: <i>Justin Enwall</i>
Relinquished by: <i>Jim Hobbins</i>	Date/Time: <i>4/29/2011 1730</i>	Received by: <i>Justin Enwall</i>



**TAL Knoxville**

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information				Project Manager: <i>Jim Brimeyer</i>				Sampled By: <i>Jim Brimeyer</i>				3 of 4 COCs							
Company: <i>Terracon</i>				Phone: <i>543.355.0702</i>				Site Contact:											
Address: <i>870 40th Ave</i>				TAL Contact:															
City/State/Zip: <i>Bellandale, IA 52722</i>																			
Phone: <i>543.355.0702</i>																			
FAX: <i>543.355.4789</i>																			
Project Name: <i>Chamberlain Vapor Intrusion</i>				Analysis Turnaround Time															
Site/location:				Standard (Specify)															
RS# Project # <i>07107020</i>				Rush (Specify)															
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-48-MF	4/28-4/29	1213	1525	-29.25	-5	K270	9120												
SS-38	4/29	1317	1357	-29	-2	10	S-1530												
SSD-38	4/29	1317	1357	-29	-2	71	92042												
IA-38-MF	4/28-4/29	1314	1402	-29.5	-4	K484	1424												
IA-38-B	4/28-4/29	1319	1405	-28.5	-4	K137	1407												
SS-39	4/29	1443	1519	-28	-1	11	4384												
Sampled by :				Temperature (Fahrenheit)															
				Interior				Ambient											
				Start				72°F				40-60°F							
				Stop				72°F				40-60°F							
				Pressure (inches of Hg)															
				Interior				Ambient											
				Start															
				Stop															
Special Instructions/QC Requirements & Comments:																			
Canisters Shipped by:				Date/Time:				Canisters Received by:											
Samples Relinquished by:				Date/Time:				Received by:											
Relinquished by:				Date/Time:				Received by:											

# Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information		Project Manager: <i>John Brimeyer</i>		Sampled By: <i>jmc/jfb/jme</i>		4 of 4 COCs	
Company: <i>Terracon</i>		Phone: <i>563.355.0702 jfb@terracon.com</i>					
Address: <i>870 10th Ave</i>		Site Contact:					
City/State/Zip: <i>Bedford IA 52722</i>		TAL Contact:					
Phone: <i>563.355.0702</i>							
FAX: <i>563.355.4789</i>							
Project Name: <i>Chamberlain-Vapor Intrusion</i>		Analysis Turnaround Time					
Site/Location:		Standard (Specify)					
PO# <i>Project # 07107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
<i>SS-21</i>	<i>4/29/11</i>	<i>1556</i>	<i>1630</i>	<i>-29</i>	<i>-3</i>	<i>55</i>	<i>W96</i>	<i>X</i>											
<i>Equipment Blank-1</i>	<i>4/28/11</i>	<i>1846</i>	<i>1848</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>1009N</i>												
<i>Equipment Blank-2</i>	<i>4/29/11</i>	<i>1651</i>	<i>1655</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>1119</i>	<i>X</i>											

Sampled by: <i>Jenclancy</i> <i>Justin Enwall</i>	Temperature (Fahrenheit)	
	Interior	Ambient
	Start <i>72°F</i>	<i>40-60°F</i>
	Stop <i>72°F</i>	<i>40-60°F</i>
	Pressure (inches of Hg)	
	Interior	Ambient
	Start	
	Stop	

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: <i>Jenclancy</i>	Date/Time: <i>4/29/2011 1705</i>	Received by: <i>Justin Enwall</i>
Relinquished by: <i>Justin Enwall</i>	Date/Time: <i>4/29/2011 1730</i>	Received by: <i>Justin Enwall</i>



## IH Sample Receipt Form

Client: Terracon Project: \_\_\_\_\_

City: Bettendorf, Ia

Date: 4/29/11 Receiver's Initials: JMH Time (Delivered): 1730

COC Completed Correctly? ☒ Yes ☐ No  
(Cite inconsistencies below)

### Sample Checklist (Check indicates conformance failure)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

### Couriers

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> UPS          | <input type="checkbox"/> TA Courier        |
| <input type="checkbox"/> FedEx        | <input type="checkbox"/> TA Field Services |
| <input type="checkbox"/> FedEx Ground | <input checked="" type="checkbox"/> Client |
| <input type="checkbox"/> USPS         | <input type="checkbox"/> Other             |
| <input type="checkbox"/> Spee-Dee     |  |

- ☒ Samples Not Received in a Cooler
- ☒ Temperature Not Taken

Reviewed By BCJ Date 4<sup>BCG</sup> 5/2/11

### Comments

Remarks/Action Taken:

Initial/Date:

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

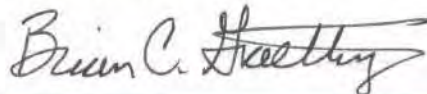
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: 800-750-2401

TestAmerica Job ID: CUE0116  
Client Project/Site: Chamberlain Vapor Sampling  
Client Project Description: TO-15 Scans

For:  
TERRACON - BETTENDORF  
870 40th Avenue  
Bettendorf, IA 52722

Attn: John Brimeyer



Authorized for release by:  
05/17/2011 12:41:02 PM

Brian C. Graettinger  
Operations Manager  
brian.graettinger@testamericainc.com

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

## Case Narrative

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0116

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**Job ID: CUE0116**

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**Laboratory: TestAmerica Cedar Falls**

**Narrative**

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**Analyzed by TestAmerica - Knoxville, TN.**

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## Sample Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0116

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUE0116-01	SS-15	Air	05/02/11 11:50	05/03/11 17:40
CUE0116-02	SS-10	Air	05/02/11 14:26	05/03/11 17:40
CUE0116-03	SS-62	Air	05/02/11 16:36	05/03/11 17:40
CUE0116-04	SS-46	Air	05/03/11 11:07	05/03/11 17:40
CUE0116-05	1A-B-46	Air	05/03/11 10:15	05/03/11 17:40
CUE0116-06	1A-1-46	Air	05/03/11 11:52	05/03/11 17:40
CUE0116-07	AA-46	Air	05/03/11 11:17	05/03/11 17:40
CUE0116-08	1A-1-40	Air	05/03/11 12:09	05/03/11 17:40
CUE0116-09	1A-1B-40	Air	05/03/11 15:24	05/03/11 17:40
CUE0116-10	AA-40	Air	05/03/11 15:24	05/03/11 17:40
CUE0116-11	AAD-40	Air	05/03/11 15:24	05/03/11 17:40
CUE0116-12	SS-40	Air	05/03/11 12:53	05/03/11 17:40
CUE0116-13	SS-45	Air	05/03/11 16:28	05/03/11 17:40
CUE0116-14	1A-1-45	Air	05/03/11 15:37	05/03/11 17:40
CUE0116-15	1A-B-45	Air	05/03/11 16:33	05/03/11 17:40
CUE0116-16	Equipment Blank	Air	05/03/11 16:55	05/03/11 17:40



# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0116

**Client Sample ID: SS-15**

Date Collected: 05/02/11 11:50

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-01**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 14:11	1.0

**Client Sample ID: SS-10**

Date Collected: 05/02/11 14:26

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-02**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 15:03	1.0

**Client Sample ID: SS-62**

Date Collected: 05/02/11 16:36

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-03**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 15:57	1.0

**Client Sample ID: SS-46**

Date Collected: 05/03/11 11:07

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-04**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 12:33	1.0

**Client Sample ID: 1A-B-46**

Date Collected: 05/03/11 10:15

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-05**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 16:49	1.0

**Client Sample ID: 1A-1-46**

Date Collected: 05/03/11 11:52

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-06**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 17:41	1.0

# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0116

**Client Sample ID: AA-46**

Date Collected: 05/03/11 11:17

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-07**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 18:35	1.0

**Client Sample ID: 1A-1-40**

Date Collected: 05/03/11 12:09

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-08**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 19:26	1.0

**Client Sample ID: 1A-1B-40**

Date Collected: 05/03/11 15:24

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-09**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 20:15	1.0

**Client Sample ID: AA-40**

Date Collected: 05/03/11 15:24

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-10**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 21:05	1.0

**Client Sample ID: AAD-40**

Date Collected: 05/03/11 15:24

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-11**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 21:57	1.0

**Client Sample ID: SS-40**

Date Collected: 05/03/11 12:53

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-12**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 13:22	1.0



# Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0116

**Client Sample ID: SS-45**

Date Collected: 05/03/11 16:28

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-13**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 11:47	1.0

**Client Sample ID: 1A-1-45**

Date Collected: 05/03/11 15:37

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-14**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 22:48	1.0

**Client Sample ID: 1A-B-45**

Date Collected: 05/03/11 16:33

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-15**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 23:40	1.0

**Client Sample ID: Equipment Blank**

Date Collected: 05/03/11 16:55

Date Received: 05/03/11 17:40

**Lab Sample ID: CUE0116-16**

Matrix: Air

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/11/11 02:12	1.0

<b>H1E060660 Analytical Report.....</b>	<b>1</b>
<b>Sample Receipt Documentation .....</b>	<b>24</b>
<b>Total Number of Pages .....</b>	<b>33</b>

## ANALYTICAL REPORT

PROJECT NO. CUE0116

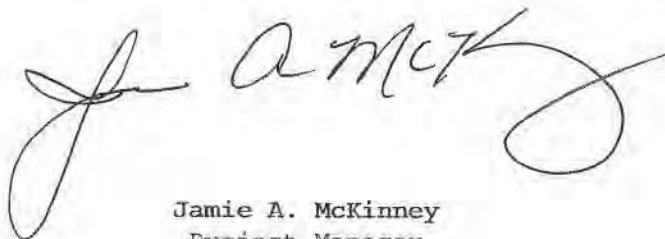
Terracon

Lot #: H1E060660

Brian Graettinger

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney  
Project Manager

May 13, 2011

## ANALYTICAL METHODS SUMMARY

H1E060660

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

### References:

EPA-2      "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.



## SAMPLE SUMMARY

HLE060660

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MH3PM	001	CUE0116-01	05/02/11	11:50
MH3PR	002	CUE0116-02	05/02/11	14:26
MH3PT	003	CUE0116-03	05/02/11	16:36
MH3PV	004	CUE0116-04	05/03/11	11:07
MH3PW	005	CUE0116-05	05/03/11	10:15
MH3PX	006	CUE0116-06	05/03/11	11:52
MH3P0	007	CUE0116-07	05/03/11	11:17
MH3P2	008	CUE0116-08	05/03/11	12:09
MH3P3	009	CUE0116-09	05/03/11	15:24
MH3P5	010	CUE0116-10	05/03/11	15:24
MH3P6	011	CUE0116-11	05/03/11	15:24
MH3P7	012	CUE0116-12	05/03/11	12:53
MH3P9	013	CUE0116-13	05/03/11	16:28
MH3QA	014	CUE0116-14	05/03/11	15:37
MH3QC	015	CUE0116-15	05/03/11	16:33
MH3QD	016	CUE0116-16	05/03/11	16:55

### NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

## PROJECT NARRATIVE H1E060660

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**The original chain of custody documentation is included with this report.**

### Sample Receipt

There were no problems with the condition of the samples received.

### Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

The concentration of trichloroethene in sample CUE0116-13 exceeded the calibration level of the instrument. The sample was analyzed at a dilution to bring the concentration of the compound into the instrument calibration range. The results for both analyses are reported in order to provide the lowest possible reporting limits.

TestAmerica Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Lab #88-0688, California DHS ELAP Cert. #2423, Colorado DPHE, Connecticut DPH Lab #PH-0223, Florida DOH Lab #E87177, Georgia DNR Lab #906, Hawaii DOH, Illinois EPA Lab #200012, Indiana DOH Lab #C-TN-02, Iowa DNR Lab #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH, Maryland DOE Cert. #277, Michigan DEQ Lab #9933, Nevada DEP, New Jersey DEP Lab #TN001, New York DOH Lab #10781, North Carolina DPH Lab #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Lab #CL0059, Oklahoma DEQ Lab #9415, Pennsylvania DEP Lab #68-00576, South Carolina DHEC Cert #84001001, Tennessee DOH Lab #02014, Texas CEQ, Utah DOH Lab # QUAN3, Virginia DGS Lab #00165, Washington DOE Lab #C1314, West Virginia DEP Cert. #345, West Virginia DHHR Cert #9955C, Wisconsin DNR Lab #998044300, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.

TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-01  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 001 Work Order # MH3PM1AA Matrix.....: AIR

Date Sampled...: 05/02/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #.....: 1130245 Analysis Time....: 14:11  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.10	0.080	0.012	0.56	0.44	0.065
Trichloroethene	0.068	0.040	0.014	0.36	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.28	0.080	0.016	1.9	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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## TestAmerica Cedar Falls

Client Sample ID: CUE0116-02

## GC/MS Volatiles

Lot-Sample # H1E060660 - 002

Work Order # MH3PR1AA

Matrix.....: AIR

Date Sampled...: 05/02/2011

Date Received...: 05/06/2011

Prep Date.....: 05/10/2011

Analysis Time....: 05/10/2011

Prep Batch #.....: 1130245

Analysis Time....: 15:03

Dilution Factor.: 1

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.11	0.080	0.016	0.76	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
Client Sample ID: CUE0116-03  
GC/MS Volatiles

Lot-Sample # H1E060660 - 003 Work Order # MH3PT1AA Matrix.....: AIR

Date Sampled...: 05/02/2011 Date Received...: 05/06/2011  
Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
Prep Batch #....: 1130245 Analysis Time....: 15:57  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.26	0.080	0.012	1.4	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.11	0.080	0.016	0.77	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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## TestAmerica Cedar Falls

Client Sample ID: CUE0116-04

## GC/MS Volatiles

Lot-Sample # H1E060660 - 004

Work Order # MH3PV1AA

Matrix.....: AIR

Date Sampled...: 05/03/2011

Date Received...: 05/06/2011

Prep Date.....: 05/10/2011

Analysis Time....: 05/10/2011

Prep Batch #.....: 1130245

Analysis Time....: 12:33

Dilution Factor.: 25

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	2.0	0.52	ND	11	2.9
Tetrachloroethene	4.3	2.0	0.40	29	14	2.7
trans-1,2-Dichloroethene	ND	2.0	0.50	ND	7.9	2.0
Trichloroethene	210	1.0	0.35	1100	5.4	1.9
1,1,1-Trichloroethane	2.4	2.0	0.30	13	11	1.6
1,1-Dichloroethane	ND	2.0	0.25	ND	8.1	1.0
Vinyl chloride	ND	2.0	0.72	ND	5.1	1.9
1,1-Dichloroethene	ND	2.0	0.32	ND	7.9	1.3
cis-1,2-Dichloroethene	ND	2.0	0.60	ND	7.9	2.4

SURROGATE

PERCENT  
RECOVERYLABORATORY  
CONTROL  
LIMITS (%)

4-Bromofluorobenzene

80

60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
Client Sample ID: CUE0116-05  
GC/MS Volatiles

Lot-Sample # H1E060660 - 005 Work Order # MH3PW1AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
Prep Batch #....: 1130245 Analysis Time....: 16:49  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	0.16	0.040	0.014	0.86	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.043 J	0.080	0.016	0.29 J	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-06  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 006 Work Order # MH3PX1AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #.....: 1130245 Analysis Time....: 17:41  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.11	0.080	0.016	0.75	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.23	0.040	0.014	1.2	0.21	0.075
1,1,1-Trichloroethane	0.22	0.080	0.012	1.2	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	81	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
Client Sample ID: CUE0116-07  
GC/MS Volatiles

Lot-Sample # H1E060660 - 007 Work Order # MH3P01AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
Prep Batch #.....: 1130245 Analysis Time....: 18:35  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	84	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-08  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 008 Work Order # MH3P21AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #....: 1130245 Analysis Time....: 19:26  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.033 J	0.040	0.014	0.18 J	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-09  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 009 Work Order # MH3P31AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #.....: 1130245 Analysis Time....: 20:15  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	0.034 J	0.040	0.014	0.18 J	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.020 J	0.080	0.016	0.13 J	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	85	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-10  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 010 Work Order # MH3P51AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #.....: 1130245 Analysis Time....: 21:05  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	80	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MBL\_D0D.rpt version 5.002 02/07/2011

## TestAmerica Cedar Falls

Client Sample ID: CUE0116-11

## GC/MS Volatiles

Lot-Sample # H1E060660 - 011

Work Order # MH3P61AA

Matrix.....: AIR

Date Sampled...: 05/03/2011

Date Received...: 05/06/2011

Prep Date.....: 05/10/2011

Analysis Time....: 05/10/2011

Prep Batch #.....: 1130245

Analysis Time....: 21:57

Dilution Factor.: 1

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-12  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 012 Work Order # MH3P71AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #....: 1130245 Analysis Time....: 13:22  
 Dilution Factor.: 2 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.16	0.042	ND	0.87	0.23
trans-1,2-Dichloroethene	ND	0.16	0.040	ND	0.63	0.16
Tetrachloroethene	2.0	0.16	0.032	13	1.1	0.22
Trichloroethene	18	0.080	0.028	99	0.43	0.15
1,1,1-Trichloroethane	0.92	0.16	0.024	5.0	0.87	0.13
1,1-Dichloroethane	ND	0.16	0.020	ND	0.65	0.081
1,1-Dichloroethene	ND	0.16	0.026	ND	0.63	0.10
Vinyl chloride	ND	0.16	0.058	ND	0.41	0.15
cis-1,2-Dichloroethene	ND	0.16	0.048	ND	0.63	0.19

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-13  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 013 Work Order # MH3P91AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #....: 1130245 Analysis Time....: 11:47  
 Dilution Factor.: 45.45 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	3.6	1.1	ND	14	4.3
Vinyl chloride	ND	3.6	1.3	ND	9.3	3.4
1,1-Dichloroethene	ND	3.6	0.59	ND	14	2.3
1,1-Dichloroethane	ND	3.6	0.45	ND	15	1.8
1,1,1-Trichloroethane	7.8	3.6	0.55	42	20	3.0
Trichloroethene	1100 E	1.8	0.64	5700 E	9.8	3.4
Tetrachloroethene	5.3	3.6	0.73	36	25	4.9
trans-1,2-Dichloroethene	ND	3.6	0.91	ND	14	3.6
1,1,2-Trichloroethane	ND	3.6	0.95	ND	20	5.2

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	74	60 - 140

Qualifiers

E Estimated result. Result concentration exceeds the calibration range.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.003 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-13  
 GC/MS Volatiles

Lot-Sample # H1E060660 - 013 Work Order # MH3P92AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/11/2011  
 Prep Batch #....: 1130245 Analysis Time....: 01:18  
 Dilution Factor.: 87.5 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	960 D	3.5	1.2	5200 D	19	6.6

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	81	60 - 140

#### Qualifiers

D Result was obtained from the analysis of a dilution.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls  
Client Sample ID: CUE0116-14  
GC/MS Volatiles

Lot-Sample # H1E060660 - 014 Work Order # MH3QA1AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
Prep Batch #.....: 1130245 Analysis Time....: 22:48  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	0.33	0.040	0.014	1.8	0.21	0.075
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	80	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0116-15  
 GC/MS Volatiles

Lot-Sample # 111E060660 - 015      Work Order # MH3QC1AA      Matrix.....: AIR

Date Sampled...: 05/03/2011      Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011      Analysis Time....: 05/10/2011  
 Prep Batch #....: 1130245      Analysis Time....: 23:40  
 Dilution Factor.: 1      Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	0.39	0.040	0.014	2.1	0.21	0.075

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
Client Sample ID: CUE0116-16  
GC/MS Volatiles

Lot-Sample # H1E060660 - 016 Work Order # MH3QD1AA Matrix.....: AIR

Date Sampled...: 05/03/2011 Date Received...: 05/06/2011  
Prep Date.....: 05/10/2011 Analysis Time....: 05/11/2011  
Prep Batch #.....: 1130245 Analysis Time....: 02:12  
Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	0.11	0.040	0.014	0.58	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.084	0.080	0.016	0.57	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	87	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

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TestAmerica Cedar Falls  
 Client Sample ID: INTRA-LAB BLANK  
 GC/MS Volatiles

Lot-Sample # H1E100000 - 245B Work Order # MH6VH1AA Matrix.....: AIR

Prep Date.....: 05/02/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #.....: 1130245 Analysis Time....: 11:03  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	84	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

## TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

## GC/MS Volatiles

Lot-Sample # H1E100000 - 245C Work Order # MH6VH1AC Matrix.....: AIR

Prep Date.....: 05/02/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/10/2011 Analysis Time....: 05/10/2011  
 Prep Batch #.....: 1130245 Analysis Time....: 09:15  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Trichloroethene	5.00	5.37	26.9	28.9	107	70 - 130
trans-1,2-Dichloroethene	5.00	4.98	19.8	19.8	100	70 - 130
1,1,2-Trichloroethane	5.00	3.78	27.3	20.6	76	70 - 130
Tetrachloroethene	5.00	4.70	33.9	31.9	94	70 - 130
1,1,1-Trichloroethane	5.00	4.44	27.3	24.2	89	70 - 130
1,1-Dichloroethane	5.00	4.54	20.2	18.4	91	70 - 130
1,1-Dichloroethene	5.00	5.18	19.8	20.6	104	70 - 130
cis-1,2-Dichloroethene	5.00	4.70	19.8	18.6	94	70 - 130
Vinyl chloride	5.00	5.57	12.8	14.2	111	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011



# TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>John Brimley</i>		Sampled By: <i>John Brimley</i>		1 of 3 COCs	
Company: <i>tervacon</i>		Phone: <i>513.355.0707</i>		Site Contact: <i>tervacon.com</i>			
Address: <i>870 40th Ave</i>		City/State/Zip: <i>Billerica, MA 01822</i>		TAL Contact:			
Phone: <i>513.355.0707</i>		FAX: <i>513.355.4789</i>					
Project Name: <i>Chamberlain Vapor Sampling</i>		Analysis Turnaround Time					
Site/location: <i>W. tervaco, la</i>		Standard (Specify)					
PO# <i>project # 0107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low Limit	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-15	5/2/2011	1111	1150	-29	-2.5	97	6680	X											
SS-10	5/2/2011	1342	1426	-29.5	-1.5	184	1010B												
SS-62	5/2/2011	1600	1634	-29	-1.5	74	04399												
SS-46	5/3/2011	1024	1107	-29	-2	191	93046												
1A-B-46	5/2-5/3	1011	1015	-27	-3	K269	0181												
1A-1-46	5/2-5/3	1008	1152	-30	-5	K387	7482	↓											

Sampled by:	Temperature (Fahrenheit)		3 boxes with custody seals RECEIVED @ Ambient Temp R-H 5/6/11 3 boxes Fed Ex 420827077241 420827077220, 420827077219 16 CANS, 7 FLOWS, 8 Flow(R)
	Interior	Ambient	
	Start		
	Stop		
	Pressure (Inches of Hg)		
	Interior	Ambient	
	Start		
	Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <i>5/3/11 1740</i>	Canisters Received by: <i>John Brimley</i>
Samples Relinquished by: <i>John Brimley</i>	Date/Time: <i>5/3/2011 1740</i>	Received by:
Relinquished by:	Date/Time:	Received by: <i>Rita Hancock 5/6/11 10:30</i>

# TAL Knoxville

5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>Jim Brimeyer</i>		Sampled By: <i>Jim Brimeyer</i>		2 of 3 COCs	
Company: <i>Terracon</i>		Phone: <i>563.355.0702</i>		Site Contact:			
Address: <i>870 40th Ave</i>		TAL Contact:					
City/State/Zip: <i>Bethesda, MD 20814</i>							
Phone: <i>563.355.0702</i>							
FAX: <i>563.355.4789</i>							
Project Name: <i>Chamberlain Vapor Sampling</i>		Analysis Turnaround Time					
Site/Location: <i>Waterloo, IA</i>		Standard (Specify)					
PO# <i>Project # 07107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 (any limit)	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
AA-40	5/2-5/3	1022	1117	-30	-25	K339	4497N	X											
IA-1-40	5/2-5/3	1207	1209	-27	-3	K407	9805B												
IA-B-40	5/2-5/3	1212	1520	-30	-4	K386	7465												
AA-40	5/2-5/3	1222	1524	-29.5	-3.5	K153	11352												
AA-40	5/2-5/3	1222	1524	-29.5	-2	K462	1352N												
SS-40	5/3	1216	1253	-28.5	-2.5	167	04306	✓											

Sampled by:	Temperature (Fahrenheit)	
	Interior	Ambient
	Start	
	Stop	
	Pressure (Inches of Hg)	
	Interior	Ambient
	Start	
	Stop	

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <i>5/3/11 1740</i>	Canisters Received by: <i>Michael Galligan</i>
Samples Relinquished by: <i>James M. Clancy</i>	Date/Time: <i>5/3/11 1740</i>	Received by:
Relinquished by:	Date/Time:	Received by: <i>Rita Hancock 5/6/11 10:30</i>



# TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>John Brimmer</i>		Sampled By: <i>Jim / Jim</i>		3 of 3 COCs	
Company: <i>Kerrigan</i>		Phone: <i>513.355.0702 jbrimmer@kerrigan.com</i>					
Address: <i>870 40th Ave</i>		Site Contact:					
City/State/Zip: <i>Bellevue IA 52722</i>		TAL Contact:					
Phone: <i>513.355.0702</i>							
FAX: <i>513.355.4185</i>							
Project Name: <i>Chamberlain Vapor Sampling</i>		Analysis Turnaround Time					
Site/Location: <i>Waterloo IA</i>		Standard (Specify)					
PO# <i>Project # 07107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 low limit	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-4S	5/3/2011	1552	1628	-29.5	-1.5	178	7788	X											
IA-1-4S	5/2-5/3	1537	1537	-28	-2	K471	7490												
IA-B-4S	5/2-5/3	1543	1633	-30	-4.5	K371	93149												
Equipment blank-3	5/3	1651	1655	-	-	-	6515												

Sampled by: <i>Jim Clancy</i> <i>Justin Orwell</i>	Temperature (Fahrenheit)	
	Interior	Ambient
	Start	
	Stop	
	Pressure (Inches of Hg)	
	Interior	Ambient
	Start	
	Stop	

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <i>5/3/11 1740</i>	Canisters Received by: <i>Mike Thompson</i>
Samples Relinquished by: <i>Jim Clancy</i>	Date/Time: <i>5/3/11 1740</i>	Received by:
Relinquished by:	Date/Time:	Received by: <i>Rita Hancock 5/6/11 10:30</i>

## SUBCONTRACT ORDER

27

TestAmerica Cedar Falls

HIED0660

CUE0116

SENDING LABORATORY:

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Phone: 800-750-2401  
Fax: 319-277-2425  
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Phone : (865) 291-3000  
Fax: -

TestAmerica OR#:

Interlab

Analysis	Due	Expires	Comments
----------	-----	---------	----------

Sample ID: CUE0116-01	Air	Sampled: 05/02/11 11:50	Air Volume (in L): 6680 w/97
-----------------------	-----	-------------------------	------------------------------

AIR - Summa Canister Rental	05/12/11 12:00	09/16/38 11:50
AIR - VOC Scan (TO-15)	05/12/11 12:00	07/31/11 11:50
AIR - Flow Controller Rental	05/12/11 12:00	02/13/85 11:50

Sample ID: CUE0116-02	Air	Sampled: 05/02/11 14:26	Air Volume (in L): 1010B w/184
-----------------------	-----	-------------------------	--------------------------------

AIR - Flow Controller Rental	05/12/11 12:00	02/13/85 14:26
AIR - Summa Canister Rental	05/12/11 12:00	09/16/38 14:26
AIR - VOC Scan (TO-15)	05/12/11 12:00	07/31/11 14:26

Sample ID: CUE0116-03	Air	Sampled: 05/02/11 16:36	Air Volume (in L): 04399 w/74
-----------------------	-----	-------------------------	-------------------------------

AIR - Flow Controller Rental	05/12/11 12:00	02/13/85 16:36
AIR - Summa Canister Rental	05/12/11 12:00	09/16/38 16:36
AIR - VOC Scan (TO-15)	05/12/11 12:00	07/31/11 16:36

Sample ID: CUE0116-04	Air	Sampled: 05/03/11 11:07	Air Volume (in L): 93046 w/191
-----------------------	-----	-------------------------	--------------------------------

AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 11:07
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 11:07
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 11:07

Released By

Date

Received By

Date

Released By

Date

Received By

Date



## SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUE0116

HIF.00660

Analysis	Due	Expires	Comments
Sample ID: CUE0116-05 Air	Sampled: 05/03/11 10:15	Air Volume (in L):	0181 w/K269
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 10:15	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 10:15	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 10:15	
Sample ID: CUE0116-06 Air	Sampled: 05/03/11 11:52	Air Volume (in L):	7482 w/K387
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 11:52	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 11:52	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 11:52	
Sample ID: CUE0116-07 Air	Sampled: 05/03/11 11:17	Air Volume (in L):	4497N w/K339
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 11:17	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 11:17	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 11:17	
Sample ID: CUE0116-08 Air	Sampled: 05/03/11 12:09	Air Volume (in L):	9805B w/K407
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 12:09	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 12:09	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 12:09	
Sample ID: CUE0116-09 Air	Sampled: 05/03/11 15:24	Air Volume (in L):	746S w/K386
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:24	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:24	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:24	

Released By

Date

Received By

Date

Released By

Date

Received By

Date



## SUBCONTRACT ORDER

29

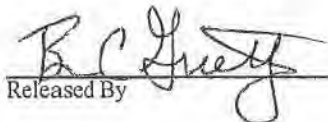
TestAmerica Cedar Falls

1-1500660

CUE0116

Analysis	Due	Expires	Comments
Sample ID: CUE0116-10 Air	Sampled: 05/03/11 15:24	Air Volume (in L):	11352 w/K153
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:24	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:24	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:24	
Sample ID: CUE0116-11 Air	Sampled: 05/03/11 15:24	Air Volume (in L):	1352N w/K462
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:24	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:24	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:24	
Sample ID: CUE0116-12 Air	Sampled: 05/03/11 12:53	Air Volume (in L):	04306 w/167
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 12:53	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 12:53	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 12:53	
Sample ID: CUE0116-13 Air	Sampled: 05/03/11 16:28	Air Volume (in L):	7788 w/178
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 16:28	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 16:28	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 16:28	
Sample ID: CUE0116-14 Air	Sampled: 05/03/11 15:37	Air Volume (in L):	7490 w/K471
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:37	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:37	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:37	

Released By



Date

5/4/11

Received By

Date

Released By

Date

Received By

Date



## IH Sample Receipt Form

Client: Tenarcon Project: \_\_\_\_\_

City: Bettendorf, Ia

Date: 5/3/11 Receiver's Initials: MF/JMH Time (Delivered): 1740

COC Completed Correctly? ☒ Yes ☐ No  
(Cite inconsistencies below)

### Sample Checklist (Check indicates conformance failure)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

### Couriers

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> UPS          | <input type="checkbox"/> TA Courier        |
| <input type="checkbox"/> FedEx        | <input type="checkbox"/> TA Field Services |
| <input type="checkbox"/> FedEx Ground | <input type="checkbox"/> Client            |
| <input type="checkbox"/> USPS         | <input type="checkbox"/> Other             |
| <input type="checkbox"/> Spee-Dee     |  |

- ☒ Samples Not Received in a Cooler  
☒ Temperature Not Taken

Reviewed By BCG Date 5/4/11

### Comments

Remarks/Action Taken:

Initial/Date:



# TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: 415-D60660

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 1a Do not match COC <input type="checkbox"/> 1b Incomplete information <input type="checkbox"/> 1c Marking smeared <input type="checkbox"/> 1d Label torn <input type="checkbox"/> 1e No label <input type="checkbox"/> 1f COC not received <input type="checkbox"/> 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)			<input checked="" type="checkbox"/>	<input type="checkbox"/> 2a Temp Blank = <input type="checkbox"/> 2b Cooler Temp = <input type="checkbox"/> 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 4a Not present <input type="checkbox"/> 4b Not intact <input type="checkbox"/> 4c Other:	
5. Were all of the samples listed on the COC received?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 5a Samples received-not on COC <input type="checkbox"/> 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 6a Leaking <input type="checkbox"/> 6b Broken	
7. Were VOA samples received without headspace?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 8a Improper container	
9. Did you check for residual chlorine, if necessary?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			<input checked="" type="checkbox"/>	<input type="checkbox"/> Incomplete information	
12. For 1613B water samples is pH<9?			<input checked="" type="checkbox"/>	If no, was pH adjusted to pH 7 - 9 with sulfuric acid?	
13. Are the shipping containers intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 13a Leaking <input type="checkbox"/> 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 14a Not relinquished	
15. Are tests/parameters listed for each sample?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
16. Is the matrix of the samples noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
17. Is the date/time of sample collection noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
18. Is the client and project name/# identified?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
19. Was the sampler identified on the COC?	<input checked="" type="checkbox"/>				
Quote #: <u>87209</u> PM Instructions: <u>NA</u>					

Sample Receiving Associate: Beta Hancock Date: 5/6/11

QA026R22.doc, 012811

# Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: H1E060660

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
MS 3/9/11	✓	28.75	MH3PM	6680 ✓	-1.2	-												9204
			MH3PR	1010B ✓	-0.3	-												9203
			MH3PT	04399 ✓	-1.3	-												9195
			MH3PV	93046 ✓	-0.7	-												9196
			MH3PW	0181 ✓	-1.3	-												9198
			MH3PX	7482 ✓	-3.6	-												9197
			MH3P0	4497N ✓	-1.0	-												9195
			MH3P2	9805B ✓	-5.6	-												9192
			MH3P3	7465 ✓	-3.2	-												9199
			MH3P5	11352 ✓	-1.8	-												9192
			MH3P6	1352N ✓	-1.0	-												9192
			MH3P7	04306 ✓	-1.7	-												9195
			MH3P9	7788 ✓	-0.6	-	MS 3/10/11	x1	28.81	-1.2	33.3							9182
			MH3QA	7490 ✓	-2.6	-												9192
			MH3QC	93149 ✓	-3.6	-												↓
			MH3QD	6515 ✓	+0.1	-												↓



**TAL Knoxville**

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>John Brimley</i>		Sampled By: <i>Jim / Jim</i>		1 of 3 COCs	
Company: <i>tervac</i>		Phone: <i>513.355.0702 jbrimley@tervac.com</i>					
Address: <i>870 40th Ave</i>		Site Contact:					
City/State/Zip: <i>Billerica, MA 01822</i>		TAL Contact:					
Phone: <i>513.355.0707</i>							
FAX: <i>513.355.4789</i>							
Project Name: <i>Chamberlain Vapor Sampling</i>		Analysis Turnaround Time					
Site/location: <i>Waterloo, IA</i>		Standard (Specify)					
PO# <i>project # 07107120</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low limit	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SS-15	5/2/2011	1111	1150	-29	-2.5	97	6680	X											
SS-10	5/2/2011	1342	1426	-29.5	-1.5	184	10103												
SS-62	5/2/2011	1600	1634	-29	-1.5	74	04399												
SS-46	5/3/2011	1024	1107	-29	-2	191	93046												
1A-B-46	5/2-5/3	1011	1015	-27	-3	K269	0181												
1A-1-46	5/2-5/3	1008	1152	-30	-5	K387	7482	↓											

Sampled by:	Temperature (Fahrenheit)		
	Interior	Ambient	
	Start		
	Stop		
	Pressure (Inches of Hg)		
	Interior	Ambient	
	Start		
	Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <i>5/3/11 1740</i>	Canisters Received by: <i>Allen Kelling</i>
Samples Relinquished by: <i>James McManis</i>	Date/Time: <i>5/3/2011 1740</i>	Received by:
Relinquished by:	Date/Time:	Received by:

# TAL Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>Jim Brimeyer</i>		Sampled By: <i>jmc/jmc</i>		2 of 3 COCs	
Company: <i>tervacon</i>		Phone: <i>615.355.0702 jfbrimeyer@tervacon.com</i>					
Address: <i>870 40th Ave</i>		Site Contact:					
City/State/Zip: <i>Bentonville, IA 52727</i>		TAL Contact:					
Phone: <i>513.355.0702</i>							
FAX: <i>513.355.4789</i>							
Project Name: <i>Chamberlain Super Sampling</i>		Analysis Turnaround Time					
Site/location: <i>Waterloo, IA</i>		Standard (Specify)					
RD# <i>Project # 07107020</i>		Rush (Specify)					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 (hookup)	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
AA-40	5/2-5/3	1022	1117	-30	-2.5	K339	4497N	X											
IA-1-40	5/2-5/3	1207	1209	-27	-3	K407	9805B												
IA-B-40	5/2-5/3	1212	1520	-30	-4	K386	7465												
AA-40	5/2-5/3	1222	1524	-29.5	-3.5	K153	11352												
AA-D-40	5/2-5/3	1222	1524	-29.5	-2	K462	1352N												
SS-40	5/3	1214	1253	-28.5	-2.5	167	04306	↓											

Sampled by:	Temperature (Fahrenheit)	
	Interior	Ambient
	Start	
	Stop	
	Pressure (Inches of Hg)	
	Interior	Ambient
	Start	
	Stop	

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <i>5/3/11 1740</i>	Canisters Received by: <i>Melanie Gallimore</i>
Samples Relinquished by: <i>James M. Clancy</i>	Date/Time: <i>5/3/11 1740</i>	Received by:
Relinquished by:	Date/Time:	Received by:



**TAL Knoxville**

5815 Middlebrook Pike

Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Contact Information</b> Company: <i>Terraviva</i> Address: <i>870 4th Ave</i> City/State/Zip: <i>Bellingham WA 98222</i> Phone: <i>509.355.0702</i> FAX: <i>509.355.4185</i>		<b>Project Manager:</b> <i>John Brimley</i> <b>Phone:</b> <i>509.355.0702</i> <i>jbrimley@terraviva.com</i> <b>Site Contact:</b> <b>TAL Contact:</b>		<b>Sampled By:</b> <i>jmc/jme</i>		<b>3</b> of <b>3</b> COCs													
<b>Project Name:</b> <i>Chamberlain Vapor Sampling</i> <b>Site/location:</b> <i>Waterloo IA</i> <b>PO#</b> <i>Project # 07107020</i>		<b>Analysis Turnaround Time</b> Standard (Specify) Rush (Specify)																	
<b>Sample Identification</b>	<b>Sample Date(s)</b>	<b>Time Start</b>	<b>Time Stop</b>	<b>Canister Vacuum in Field, "Hg (Start)</b>	<b>Canister Vacuum in Field, "Hg (Stop)</b>	<b>Flow Controller ID</b>	<b>Canister ID</b>	<b>TO-15</b>	<b>TO-14A</b>	<b>EPA 3C</b>	<b>EPA 25C</b>	<b>ASTM D-1946</b>	<b>Other (Please specify in notes section)</b>	<b>Sample Type</b>	<b>Indoor Air</b>	<b>Ambient Air</b>	<b>Soil Gas</b>	<b>Landfill Gas</b>	<b>Other (Please specify in notes section)</b>
SS-4S	5/3/2011	1552	1628	-29.5	-1.5	178	7788	X											
IA-1-4S	5/2-5/3	1637	1537	-28	-2	1471	7490												
IA-B-4S	5/2-5/3	1543	1633	-30	-4.5	1371	93149												
Equipment blank-3	5/3	1651	1655	-	-	-	6515												
<b>Sampled by:</b> <i>Jen Clancy</i> <i>Justin Erwall</i>																			
<b>Temperature (Fahrenheit)</b> Interior Ambient Start Stop																			
<b>Pressure (Inches of Hg)</b> Interior Ambient Start Stop																			
<b>Special Instructions/QC Requirements &amp; Comments:</b>																			
<b>Canisters Shipped by:</b>				<b>Date/Time:</b> <i>5/3/11 1740</i>				<b>Canisters Received by:</b> <i>Michael Thorne</i>											
<b>Samples Relinquished by:</b> <i>Jen Clancy</i>				<b>Date/Time:</b> <i>5/3/11 1740</i>				<b>Received by:</b>											
<b>Relinquished by:</b>				<b>Date/Time:</b>				<b>Received by:</b>											

## IH Sample Receipt Form

Client: Tenacore Project: \_\_\_\_\_

City: Bettendorf, IA

Date: 5/3/11 Receiver's Initials: MP/JMH Time (Delivered): 1740

COC Completed Correctly? ☒ Yes ☐ No  
(Cite inconsistencies below)

### Sample Checklist (Check indicates conformance failure)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

### Couriers

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> UPS          | <input type="checkbox"/> TA Courier        |
| <input type="checkbox"/> FedEx        | <input type="checkbox"/> TA Field Services |
| <input type="checkbox"/> FedEx Ground | <input type="checkbox"/> Client            |
| <input type="checkbox"/> USPS         | <input type="checkbox"/> Other             |
| <input type="checkbox"/> Spee-Dee     |  |

- ☒ Samples Not Received in a Cooler
- ☒ Temperature Not Taken

Reviewed By BCG Date 5/4/11

### Comments

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Remarks/Action Taken:

Initial/Date:



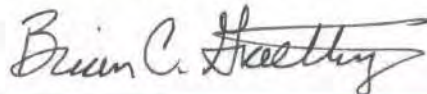
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: 800-750-2401

TestAmerica Job ID: CUE0188  
Client Project/Site: Chamberlain Vapor Sampling  
Client Project Description: TO-15 Scans

For:  
TERRACON - BETTENDORF  
870 40th Avenue  
Bettendorf, IA 52722

Attn: John Brimeyer



Authorized for release by:  
05/17/2011 11:46:20 AM

Brian C. Graettinger  
Operations Manager  
brian.graettinger@testamericainc.com

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*



## Case Narrative

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0188

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**Job ID: CUE0188**

---

**Laboratory: TestAmerica Cedar Falls**

**Narrative**

---

**Analyzed by TestAmerica - Knoxville, TN.**

1

2

3

4

## Sample Summary

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0188

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUE0188-01	SS-67	Air	05/04/11 13:05	05/04/11 13:35
CUE0188-02	SSD-67	Air	05/04/11 13:05	05/04/11 13:35

## Analytical Data

Client: TERRACON - BETTENDORF  
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CUE0188

**Client Sample ID: SS-67**

**Date Collected: 05/04/11 13:05**

**Date Received: 05/04/11 13:35**

**Lab Sample ID: CUE0188-01**

**Matrix: Air**

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/09/11 00:00	1.0

**Client Sample ID: SSD-67**

**Date Collected: 05/04/11 13:05**

**Date Received: 05/04/11 13:35**

**Lab Sample ID: CUE0188-02**

**Matrix: Air**

**Method: EPA TO-15 - Air Sample Analysis - Subcontract**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/09/11 00:00	1.0

<b>H1E060641 Analytical Report.....</b>	<b>1</b>
<b>Sample Receipt Documentation .....</b>	<b>9</b>
<b>Total Number of Pages .....</b>	<b>13</b>

## ANALYTICAL REPORT

PROJECT NO. CUE0188

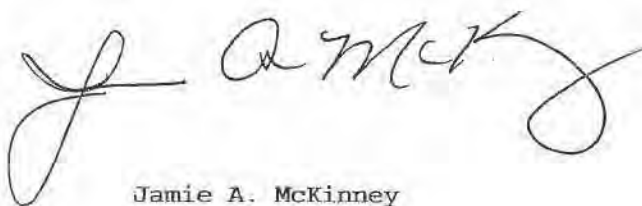
Terracon

Lot #: H1E060641

Brian Graettinger

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney  
Project Manager

May 13, 2011



## ANALYTICAL METHODS SUMMARY

H1E060641

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Volatile Organics by T015	EPA-2 TO-15

### References:

EPA-2      "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

**SAMPLE SUMMARY**

H1E060641

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MH3LH	001	CUE0188-01	05/04/11	13:05
MH3LN	002	CUE0188-02	05/04/11	13:05

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

## PROJECT NARRATIVE H1E060641

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**The original chain of custody documentation is included with this report.**

### Sample Receipt

There were no problems with the condition of the samples received.

### Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

TestAmerica Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Lab #88-0688, California DHS ELAP Cert. #2423, Colorado DPHE, Connecticut DPH Lab #PH-0223, Florida DOH Lab #E87177, Georgia DNR Lab #906, Hawaii DOH, Illinois EPA Lab #200012, Indiana DOH Lab #C-TN-02, Iowa DNR Lab #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH, Maryland DOE Cert. #277, Michigan DEQ Lab #9933, Nevada DEP, New Jersey DEP Lab #TN001, New York DOH Lab #10781, North Carolina DPH Lab #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Lab #CL0059, Oklahoma DEQ Lab #9415, Pennsylvania DEP Lab #68-00576, South Carolina DHEC Cert. #84001001, Tennessee DOH Lab #02014, Texas CEQ, Utah DOH Lab # QUAN3, Virginia DGS Lab #00165, Washington DOE Lab #C1314, West Virginia DEP Cert. #345, West Virginia DHHR Cert #9955C, Wisconsin DNR Lab #998044300, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.

TestAmerica Cedar Falls  
 Client Sample ID: CUE0188-01  
 GC/MS Volatiles

Lot-Sample # 111E060641 - 001 Work Order # MH3LH1AA Matrix.....: AIR

Date Sampled...: 05/04/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/09/2011 Analysis Time....: 05/09/2011  
 Prep Batch #.....: 1130108 Analysis Time....: 14:03  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	0.064 J	0.080	0.016	0.43 J	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-15 rev5MDL\_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CUE0188-02  
 GC/MS Volatiles

Lot-Sample # H1E060641 - 002 Work Order # MH3LN1AA Matrix.....: AIR

Date Sampled...: 05/04/2011 Date Received...: 05/06/2011  
 Prep Date.....: 05/09/2011 Analysis Time....: 05/09/2011  
 Prep Batch #....: 1130108 Analysis Time....: 14:57  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.077 J	0.080	0.016	0.52 J	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	0.015 J	0.040	0.014	0.081 J	0.21	0.075
1,1,1-Trichloroethane	0.012 J	0.080	0.012	0.068 J	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	109	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 rev5MDL\_D0D.rpt version 5.002 02/07/2011



TestAmerica Cedar Falls  
 Client Sample ID: INTRA-LAB BLANK  
 GC/MS Volatiles

Lot-Sample # H1E100000 - 108B Work Order # MH59T1AA Matrix.....: AIR

Prep Date.....: 05/04/2011 Date Received..: 05/06/2011  
 Prep Date.....: 05/09/2011 Analysis Time....: 05/09/2011  
 Prep Batch #.....: 1130108 Analysis Time....: 11:20  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	113	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_D00.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls  
 Client Sample ID: CHECK SAMPLE  
 GC/MS Volatiles

Lot-Sample # H1E100000 - 108C Work Order # MH59T1AC Matrix.....: AIR

Prep Date.....: 05/04/2011 Date Received..: 05/06/2011  
 Prep Date.....: 05/09/2011 Analysis Time....: 05/09/2011  
 Prep Batch #.....: 1130108 Analysis Time....: 09:18  
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloroethene	5.00	5.34	33.9	36.2	107	70 - 130
1,1,2-Trichloroethane	5.00	5.38	27.3	29.3	108	70 - 130
trans-1,2-Dichloroethene	5.00	5.66	19.8	22.4	113	70 - 130
Trichloroethene	5.00	5.70	26.9	30.6	114	70 - 130
1,1,1-Trichloroethane	5.00	5.32	27.3	29.0	106	70 - 130
1,1-Dichloroethane	5.00	5.47	20.2	22.1	109	70 - 130
cis-1,2-Dichloroethene	5.00	5.38	19.8	21.3	108	70 - 130
1,1-Dichloroethene	5.00	6.01	19.8	23.8	120	70 - 130
Vinyl chloride	5.00	5.82	12.8	14.9	116	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] \* (Molecular Weight/24.45)

TO-14 \_rev5MDL\_DOD.rpt version 5.002 02/07/2011

TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

# Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <i>John Brimeyer</i>		Sampled By: <i>jmc / drc</i>		1 of 1 COCs	
Company: <i>terracon</i>		Phone: <i>563.355.0702; jfbrimeyer@terracon.com</i>					
Address: <i>875 40th Ave</i>		Site Contact:					
City/State/Zip: <i>Brittandale, IA 52322</i>		TAL Contact:					
Phone: <i>563.355.0702</i>							
FAX: <i>563.355.4787</i>							
Project Name: <i>Chamberlain Vapor Sampling</i>		Analysis Turnaround Time					
Site/location: <i>Wadeville Ia</i>		Standard (Specify):					
PO# <i>Project# 07107020</i>		Rush (Specify):					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low Unit	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
<i>SS-47 Gmc SS-67</i>	<i>5/4/2011</i>	<i>1227</i>	<i>1305</i>	<i>-28.5</i>	<i>-2.5</i>	<i>83</i>	<i>7472</i>	<input checked="" type="checkbox"/>											
<i>SSD-47 Gmc SSD-67</i>	<i>↓</i>	<i>1227</i>	<i>1305</i>	<i>-30</i>	<i>-4</i>	<i>02</i>	<i>6669</i>	<input checked="" type="checkbox"/>											

Sampled by: <i>Jen Clancy</i> <i>Lore Clancy</i>	Temperature (Fahrenheit)		<i>1 bx with CUSTODY SEALS</i> <i>RECEIVED @ AMBIENT TEMP</i> <i>R# 5/6/11</i> <i>1 bx Fed Ex 420827077230</i> <i>2 CANS 2 FLOWS</i>
	Interior	Ambient	
	Start		
	Stop		
	Pressure (Inches of Hg)		
	Interior	Ambient	
	Start		
	Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
<i>Jen Clancy</i>	<i>5/4/2011 1:30</i>	<i>Conner 5-4-11 13:35</i>
Samples Relinquished by:	Date/Time:	Received by:
<i>Jen Clancy</i>	<i>5/4/2011 1:30</i>	
Relinquished by:	Date/Time:	Received by:
		<i>Rita Hancock 5/6/11 10:30</i>



## SUBCONTRACT ORDER

171E 060641

10

TestAmerica Cedar Falls

CUE0188

SENDING LABORATORY:

TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Phone: 800-750-2401  
Fax: 319-277-2425  
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Phone: (865) 291-3000  
Fax: -

TestAmerica OR#:

Interlabs

Analysis	Due	Expires	Comments
----------	-----	---------	----------

Sample ID: CUE0188-01	Air	Sampled: 05/04/11 13:05	Air Volume (in L): 7472 w/83
-----------------------	-----	-------------------------	------------------------------

AIR - VOC Scan (TO-15)	05/18/11 12:00	08/02/11 13:05
AIR - Summa Canister Rental	05/18/11 12:00	09/18/38 13:05
AIR - Flow Controller Rental	05/18/11 12:00	02/15/85 13:05

Sample ID: CUE0188-02	Air	Sampled: 05/04/11 13:05	Air Volume (in L): 6669 w/02
-----------------------	-----	-------------------------	------------------------------

AIR - VOC Scan (TO-15)	05/18/11 12:00	08/02/11 13:05
AIR - Summa Canister Rental	05/18/11 12:00	09/18/38 13:05
AIR - Flow Controller Rental	05/18/11 12:00	02/15/85 13:05

Released By

Date

Received By

Date

Released By

Date

Received By

Date

## Sample Receipt and Temperature Log Form

Client: Terralon Project: \_\_\_\_\_

City: \_\_\_\_\_

Date: 5-4-11 Receiver's Initials: CH Time (Delivered): 13:35

### Temperature Record:

**Cooler ID#** (If Applicable)  
in boxes

\_\_\_\_\_ °C / On Ice

### Thermometer:

- ☐ IR - 61997671 'B'
- ☐ IR - 90876942 'C'
- ☐ IR - 61854108
- ☐ 22126775

### Courier:

- ☐ UPS ☐ TA Courier
- ☐ FedEx ☐ TA Field Services
- ☐ FedEx Ground ☒ Client
- ☐ US Postal Service ☐ Other
- ☐ Spee-Dee

☐ Temp Blank

☐ Temperature out of compliance

Custody seals present?

☒ Yes

Custody seals intact?

☒ Yes ☐ No

☐ Non-Conformance report started

### Exceptions Noted

- ☒ Sample(s) not received in a cooler.
- ☐ Samples(s) received same day of sampling.
- ☐ Evidence of a chilling process
- ☒ Temperature not taken:

\*Refer to SOP CF-SS-01 for Temperature Criteria

H:\QA Folder\QA Forms & Log Book pgs\Cooler Receipt rev15.doc



# TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: W1F0160141

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 1a Do not match COC <input type="checkbox"/> 1b Incomplete information <input type="checkbox"/> 1c Marking smeared <input type="checkbox"/> 1d Label torn <input type="checkbox"/> 1e No label <input type="checkbox"/> 1f COC not received <input type="checkbox"/> 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)			<input checked="" type="checkbox"/>	<input type="checkbox"/> 2a Temp Blank = <input type="checkbox"/> 2b Cooler Temp = <input type="checkbox"/> 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 4a Not present <input type="checkbox"/> 4b Not intact <input type="checkbox"/> 4c Other:	
5. Were all of the samples listed on the COC received?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 5a Samples received-not on COC <input type="checkbox"/> 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 6a Leaking <input type="checkbox"/> 6b Broken	
7. Were VOA samples received without headspace?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 8a Improper container	
9. Did you check for residual chlorine, if necessary?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			<input checked="" type="checkbox"/>	<input type="checkbox"/> Incomplete information	
12. For 1613B water samples is pH<9?			<input checked="" type="checkbox"/>	If no, was pH adjusted to pH 7 - 9 with sulfuric acid?	
13. Are the shipping containers intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 13a Leaking <input type="checkbox"/> 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 14a Not relinquished	
15. Are tests/parameters listed for each sample?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
16. Is the matrix of the samples noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
17. Is the date/time of sample collection noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
18. Is the client and project name/# identified?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
19. Was the sampler identified on the COC?	<input checked="" type="checkbox"/>				

Quote #: 87209 PM Instructions: \_\_\_\_\_

Sample Receiving Associate: Rita Hancock

Date: 5/6/11

QA026R22.doc, 012811

# Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: H1E060641

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DDF 5-10-11	NA	2864	MH3 LH	7472	-1.4													9204
G	↓	↓	MH3 LN	6669	-0.8													9203

**Appendix H**  
**Listing of Residences in Expanded Study Area**

**Appendix H**  
**Residences in Expanded Study Area**  
**Vapor Intrusion Characterization Report**  
**Former Chamberlain Manufacturing Facility**

Boston Avenue - Anita Street to Esther Street	
East Side of Street	
436 Boston Avenue	
432 Boston Avenue	
424 Boston Avenue	
420 Boston Avenue	
416 Boston Avenue	
410 Boston Avenue	
406 Boston Avenue	
400 Boston Avenue	
Boston Avenue - Esther Street to Hanover Street	
West Side of Street	
327 Boston Avenue	
321 Boston Avenue	
317 Boston Avenue	
311 Boston Avenue	
307 Boston Avenue	
301 Boston Avenue	